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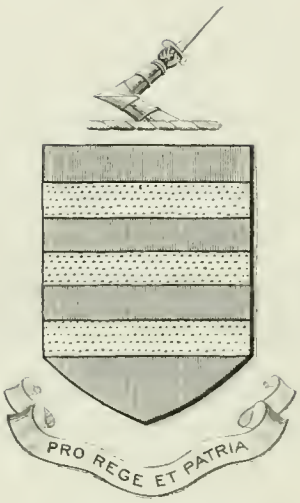

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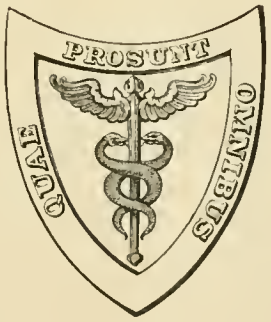

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ORIGINAL ARTICLES.

THE TREATMENT OF THORACIC ANEURISM BY IODIDE OF POTASSIUM.[1]

BY R. L. MACDONNELL, B.A., M.D.,
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THE good results afforded by the treatment of thoracic aneurism by moderate doses of iodide of potassium deserve more favorable recognition by the profession, on whose part there is a tendency to regard aneurism in the chest as a disease wholly incurable and almost beyond relief. As a consequence such cases often appear at city hospitals to take advantage of a treatment which in many instances could have been carried out at home with equal benefit, and certainly with less expense and discomfort. Of the various plans of treatment which have been proposed, none has proved so satisfactory as that of rest with the administration of iodide of potash. No special diet restrictions need be carried out. The amount of food daily consumed should be moderate, and the daily allowance of fluids kept within comfortable limits. Rest in bed is not an absolute necessity, except when symptoms are urgent, and when cough and dyspnœa are severe, or where it is evident that a very rapid growth is taking place in the tumor.

Eighteen cases of thoracic aneurism have come under my observation during four years' service on the medical staff of the Montreal General Hospital. Not all of these were my own cases, but some were under the care of my colleagues, with whose kind permission I quote them. All were not available for proof of the efficacy of any kind of treatment, the majority refusing to stay in the hospital, or leaving in a few days, whilst others who were out-patients could only be induced to remain long enough to be examined by the clinical medicine class. There remain but six cases to illustrate the beneficial results of the iodide of potash.

CASE I.—D. J., æt. fifty-five, colored, a barber, admitted in December, 1885, with symptoms of extensive aortic enlargement, there being pressure symptoms showing that the whole arch as well as the descending aorta was involved. A pulsating prominence dull on percussion was found in the left interscapular region: orthopnœa; brassy cough and severe pain in the left chest; cardiac area much increased; double aortic murmur. The case is elsewhere reported in detail to record a rare symptom in aneurism of the chest, viz., localized sweating over the area of distribution of those nerves supposed to be pressed upon by the tumor. This man steadily improved under treatment, went to his home in June, 1886, and has remained ever since in a greatly improved state of health. He is no longer confined to bed, can walk about the house, or short distances in the street, without discomfort or pain. The tumor has become smaller and pulsation less evident. He has been taking iodide of potash in ten grain doses almost uninterruptedly since he first came under observation.

CASE II.—G. C., æt. thirty-five, about three months ago began to suffer from cough of a hollow, dry, brassy character, and extensive pain under the upper part of the sternum. There was urgent dyspnœa upon exertion. Tracheal tugging was present. There was no dulness on percussion or bruit. Aneurism probably in the transverse arch pressing upon the trachea. No history of syphilis.

After six weeks' residence in hospital, taking ten grain doses of the iodide, he returned to the country. The pain and dyspnœa were relieved, but cough was still present. No further history to be obtained.

CASE III.—E. A., æt. forty-seven, for twenty years a cavalry soldier and instructor in sword exercise. Admitted to the hospital for the first time in June, 1885, complaining of pain in chest, dyspnœa, dry brassy cough without expectoration, emaciation and debility. Had syphilis ten years ago. Dates the present illness from the kick of a horse received in January, 1885.

The pain is very severe, situated in the upper sternal region and shooting to the right side, becoming intolerable on any attempt to lie on the left side. The superficial veins are enlarged upon the chest and left side of the abdomen. There is local bulging with expansile movement and dulness on percussion over an area one and a half to two inches in diameter, at the level of the second rib, close to the right side of the sternum. No thrill; no murmur; second sound accentuated. No tracheal tugging; carotid and radial pulses are equal. Paralysis of left vocal cord.

Was placed upon ordinary diet, and given ten grains of iodide of potash three times a day.

[1] Portion of a paper read before the Canada Medical Association at Hamilton, Ontario, Sept. 1, 1887.

After a month it was noted that he had gained flesh, the brassiness of the cough had almost disappeared, there was no dyspnœa, and he became able to lie upon either side without pain or distress. He was discharged in September, 1885. Not finding any work to do he joined the volunteers and undertook night duty for a week in the guarding of public buildings at the time of the vaccination riots, and being anxious to make money he took duty for others, so that he was on guard every night in succession for a week. Then he obtained a situation as groom, which he was able to keep, until he found something better to do in the cotton factories at Cornwall. On Nov. 23, 1886, he returned to the Montreal General Hospital with an attack of facial erysipelas. He told us then that he had almost uninterruptedly taken the iodide, and that he had not suffered any of the symptoms for which he had previously been under treatment. He is active and well now (Dec. 12, 1887).

It is commonly stated, and, indeed, by some of the best authorities on the subject, that the benefit derived from the iodide is entirely due to the accompanying rest and diet, but I think here the drug must get the credit.[1] This man was enabled by its use to be relieved of symptoms and to return to the gaining of his living, continuing, as far as we know, for two and a half years in good health, doing hard work and under no diet restriction.

Case IV.—I. G., æt. fifty-four, was a man whom the world had used hardly. He had been a soldier in the Royal Artillery and was wounded by a bayonet thrust through the back of the neck at Inkerman, was made prisoner by the Sepoys in India, lost his right leg in an explosion in a mine, and broke his right thigh in a railway accident. Admitted to the Montreal General Hospital on the 27th of November, 1886. Had been complaining of hoarseness for nearly a year and had been under treatment for an affection of the throat. Last September, two months before admission, had been suddenly seized with a severe paroxysm of coughing, and since then had suffered greatly from a dry, hard cough, which was worse at night or upon exertion. Latterly, there had been severe pain in the chest and dyspnœa upon the slightest exertion, so urgent as to prevent the patient walking even a short distance, or talking without getting completely out of breath. When quite at rest the breathing was very noisy, so much so as to disturb other patients in the ward. The voice was reduced to a whisper. Suffered from sharp pain shooting up the right side of the neck to the occiput. History of syphilis very probable.

The physical signs pointed to the presence of an aneurism of the innominate.

The symptoms were very severe and alarming; nevertheless, steady improvement followed the use of iodide of potassium. He stayed in hospital all winter, being at first obliged to remain in bed owing to the dyspnœa, but after two months improvement was most evident; pain, dyspnœa, and cough disappeared. From March to May he was kept on as a convalescent, assisting in the work of the hospital, and not suffering from any of his symptoms, except the noisy breathing, which was noticed only when he was asleep. On the day of his discharge, in May, he was able to walk from the hospital to my house, a good mile up hill all the way, without any suffering.

Since that time I have not seen him, but I hear that he is still alive.

Case V.—W. H., æt. thirty-one, had been from boyhood a bandsman in the Imperial Army, and had served many years in India, but has lately been employed as a lumberman. Has had acute rheumatism but never any venereal disease. Admitted to Montreal General Hospital on Dec. 15, 1885, under the care of Dr. George Ross, complaining of a painful lump in the upper part of his chest. About a year previously to admission he began to suffer from pain supposed to be neuralgic, in the upper part of the chest, in the right axillary region, and along the inner side of the upper arm. After a time these pains became less severe, and were succeeded by others in the right side of the head and neck, which soon attacked the other side. When pain first appeared a dry hacking cough began, which gradually has been increasing in severity, and soon was noticed to have a barking sound. Shortness of breath upon exertion has never been present. One month ago he noticed the swelling in the chest.

Physical examination (extract from Hospital Case-book): A well-nourished, healthy-looking man, temperature normal; pulse 72, good strength, regular, equal on both sides. On the front of the chest a distinct pulsating elevation 1½ inch in diameter, seen at the upper part of the sternum, reaching as high as the sterno-clavicular articulation, and lying a little to the right of the middle line. Percussion shows a dull area of a diameter of 2½ inches, the centre being the centre of the tumor. Pulsation in the tumor is well marked, heaving and lateral, and there is a well-marked diastolic shock, but no thrill. In the episternal pit pulsation is slightly felt. There is a slight soft blowing systolic bruit of maximum intensity to the right of the tumor, transmitted out beneath the right clavicle, very faintly heard over the tumor, increased by sitting posture and variable in intensity from time to time. The second sound is loud and booming over

[1] Gull (Lancet, Nov. 27, 1875): "Those cases of reputed aneurism, which were said to be cured by iodide of potassium, were really not aneurisms at all. They were examples of mistaken diagnosis."

the tumor and usually distinct at the apex. Tracheal tugging is well marked.

The usual ten grains of the iodide were prescribed with rest in bed and good diet.

Dec. 31. Aneurism has decreased one inch in circumference; pulsations less strong; bruit louder. The bony edge of the aperture in the sternum can be clearly felt. No pain whatever.

Patient left the hospital. There remains but a very slightly elevated tumor at the upper part of the sternum with evenly distributed pulsation with maximum force at the upper part of the sternum and toward the right, where a well-defined hole in the bone can be made out, through which the impulse can be more plainly felt. Dulness on percussion remains over an area of about two and a half inches in diameter.

No report has been heard of the course of the disease.

CASE VI.—H. M., æt. forty-three, now a laborer but for many years a sailor. Admitted Oct. 2, 1885. The disease began with pain in the right side of the neck and head, which has occurred off and on for a long time, and which he dates from a strain in lifting a large piece of ice some nine years ago. No history of syphilis. In 1884 the pains became worse, the voice hoarse, and he began to lose flesh, signs of pressure on the superior vena cava began to appear, the lids became puffy, the face and neck greatly swollen, ears blue. Dyspnœa on exertion was also present. There were physical signs pointing to the presence of an innominate aneurism. The abdominal and thoracic veins on the right side were enlarged. Tracheal tugging present. Right pupil smaller than the left; no paralysis of the vocal cord.

Treatment as usual. He left the hospital on the 4th of October taking his medicine with him, returning on the 23d of the same month to report himself. The face and lids were much less swollen. Pain partially relieved, cough easier. Dyspnœa has been troublesome on one occasion only. Has been sleeping well, which he has not done for twelve months. He was readmitted on Oct. 30th, and discharged in January, 1886, feeling much better with the exception of a return of the pain, but he soon came back with symptoms no worse, but there was noticed for the first time deficient resonance over nearly the whole of the left lung, with weakened breathing. For the rest of the winter he remained in the hospital, nearly all the time in bed, complaining of the dyspnœa at night, but in June, 1886, he improved greatly and left us. Now here occurred what I consider remarkable in the case: this man who had been so ill all winter, and in extreme suffering and danger, so far recovered as to be able to leave the hospital, obtain work, and gain his living for seven months as a night watchman. In September, I saw him walking in the street, looking as well as any one, a man who but a few months before had been in bed gasping for breath, blue in the face, and lying propped up with pillows. He told me that he himself was so convinced of the benefit of the iodide that nothing would tempt him to miss a dose of it, and that he had persistently taken it since he had been in hospital. When the winter came on he got out of work, and having no home suffered great hardships. I found him one day in the early winter half clad and hungry wandering about the streets, and secured his admission to the hospital, but rather too late. The privations of the last few weeks seemed to have undone all that had been done. Rapid enlargement of the superficial thoracic veins took place, and he died in hospital.

CASE VII.—This case is introduced to show the immediate effects of iodide of potash in relieving urgent symptoms.

W. S., æt. forty-eight, a private patient, now a clerk, who has served twenty-one years in the army, fourteen years in the ranks and seven as a military clerk. Had syphilis severely twenty years ago. Has had symptoms of aneurism for seven years, pain in right shoulder and root of the neck and shooting into the tips of the fingers, and was treated for rheumatism in a military hospital, whence he went to St. George's Hospital, where the diagnosis of aneurism of the innominate was first made. In 1882 he was subjected to a course of low feeding with iodide of potassium in thirty grain doses. The pain was very severe and numbness in the arm was also present. About this time the right clavicle became dislocated forward and the pressure symptoms abated.

When I saw him there was very great dyspnœa and most severe pain in the chest, the general condition being one of angina. Could not lie down or remain quiet for any length of time. There were physical signs of a very large aneurism of the innominate artery extending above the dislocated clavicle into the root of the neck. Right pupil was much smaller than the left, and the right pulse much weaker than that of the other side. He had been suffering severely from pain and dyspnœa for the previous six weeks.

Immediate relief was afforded by morphia and the patient given the usual dose of iodide in spite of his protestations. At the end of a fortnight all urgent symptoms had disappeared, and he was enabled to return to his duties suffering no pain. He remained well, under my observation, until May, 1886, when he lost his situation and went to the west. During all this time he had no symptom to complain of, and repeatedly told me that he had not felt better since the aneurism began.

FEMALE DRESS AS A DETERMINING FACTOR IN PULMONARY CONSUMPTION.

BY THOMAS J. MAYS, M.D.,

PROFESSOR OF DISEASES OF THE CHEST IN THE PHILADELPHIA POLYCLINIC.

However much the human family may pride itself on the independence of its mental forces, it is quite certain that its physical constitution is moulded to an indefinite extent both by external and internal influences. Food, drink, clothing, shelter, ventilation, occupation, exercise, sexual differentiation, etc., not only modify the conditions of normal life, but render the two sexes liable to different diseases. The fact that a greater liability exists in the female sex toward hysteria, chorea, cancer, anæmia, ascites, peritonitis, glaucoma, etc., and in the male sex toward angina pectoris, tetanus, locomotor ataxy, Addison's disease, diabetes, typhoid fever, etc., are evidences of the general truthfulness of this statement, and we shall herein offer evidence to show that pulmonary consumption is no exception to this rule.

It is currently believed that more females than males fall victims to this disease. Both Laennec and Louis held this view, at least so far as France was concerned; and Ancell, one of the most prolific and exhaustive writers on the natural history of tuberculosis, concurs entirely in this opinion. Sir James Clark's statistics, which were collected from thirteen different localities in Europe and America, showed in the aggregate more deaths from phthisis among females than among males. Dr. A. James, in an interesting article on "Sex in Connection with Phthisis," lately published in *The Edinburgh Medical Journal* (March, 1886), arrives at the same conclusion. It must be admitted, too, that if the question of sex in relation to pulmonary consumption be viewed from an *a priori* standpoint, there are sufficient reasons for believing that the female is more prone to the disease than the male, because she is generally considered to be the weaker, and because she is more exposed to the causes which are known to give rise to it. She is confined within-doors, where she naturally spends the greater portion of her life, and is, of course, subjected to the influences of impure air and bad ventilation. She leads a sedentary life, is deprived of sunlight, exercise, and undergoes the enervating processes of gestation and lactation, while, on the other hand, the male is, as a general rule, less or not at all exposed to most of such unhealthful conditions; and it is only when he is subjected to some of them, as, for instance, to impure air, sedentary occupations, etc., that he becomes notoriously liable to pulmonary consumption.

Having recently made an inquiry into the death-rate of pulmonary consumption in different parts of this city,[1] our attention, in comparing the death-rate of this with that of some other American cities, was drawn to the fact that in most instances the male decedents from consumption exceeded the number of female decedents. The range of the statistics which we then examined was rather too limited to draw any satisfactory inferences, and it therefore appeared to us of interest to ascertain whether this difference in the liability of the two sexes to this disease exists with sufficient constancy to be regarded as a law, and, if so, whether there be any obvious cause for this phenomenon. We accordingly collected and herewith present statistics in regard to this question which embrace the principal cities of Europe and of America, as well as some of the agricultural districts of the former country, besides embodying statistics of about six thousand cases of consumption which have been gathered from the hospitals and private practices of various authors and practitioners throughout Europe and America. We have, so far as this was possible, compared the number of deaths from consumption of each sex with

Statistics of Sex in Pulmonary Consumption.

Locality.	Male	Female	Remarks.
Chicago[1]	1 : 635	1 : 793	Average for 6 years, 1869, '81 to '85.
New York City, 1870	1 : 233	1 : 318	
Massachusetts, 1880	2.86 p. ct.	3.28 p. ct.	Per 1000 males and females, respectively.
Boston, 1883–84	1 : 248	1 : 251	
Rhode Island, 1884 and 1885	1 : 380	1 : 351	
Philadelphia, 1884 and 1885	1 : 303	1 : 310	
Nashville, 1877 and 1878	1 : 263	1 : 286	Both white and colored males and females.
" " " "	1 : 443	1 : 422	White males and females only.
" " " "	1 : 142	1 : 190	Colored males and females only.
San Francisco, 1875 to 1880	1 : 313	1 : 418	Average of 5 years.
Sacramento	1 : 340	1 : 435	Average of years 1874 and 1879.
Cincinnati, 1883	1 : 325	1 : 423	
Baltimore, 1885	1 : 342	1 : 381	
Scotland, 1871 to 1880	1 : 423	1 : 387	
England, 1872 to 1881	1 : 467	1 : 502	
London, 1843 to 1846, decedents from consumption.	53 p. ct.	47 p. ct.	See Ancell, p. 396.
Basel and Zurich, 1877 to 1884, decedents from consumption.	54.7 p. ct.	45.3 p. ct.	See Dr. Schnyder in "Correspondenz Blatt für Schweizer Aertzte, Nos. 10, 11, 12, 1886.
Cantons of Wallis, Waadt, Freiburg, Lucerne, from 1877 to 1884, decedents from consumption.	52.5 p. ct.	47.5 p. ct.	" " "
Cities of Prussia, 1875–1879	1 : 230	1 : 318	
County districts of Prussia, 1875–1879.	1 : 314	1 : 369	
Leading cities of New Jersey, 1884, deaths from consumption in nine.	94	84	

[1] These figures indicate a lower death-rate for Chicago than actually exists, because we were not able to obtain the male and female population of this city separately; hence our estimate is based on the male and female population of Cook County in which it is located, and for comparative purposes answers very well.

[1] A Study of Pulmonary Consumption in the City of Philadelphia, by Thomas J. Mays, M.D., pp. 26. Transactions of the College of Physicians of Philadelphia, November 3, 1886.

Hospital and private practice.	Male.	Female	Remarks.
Dr. Flint, Sr., 669 cases .	508	164	See Flint on Phthisis, p. 50.
Dr. Williams, 1000 cases .	625	375	See Williams on Consumption.
First Brompton Hospital report, 1848.	61	39	
Dr. Pollock's practice . .	60 75 p. ct	39 25 p. ct.	
254 patients of Dr. Schnyder's, coming from cities.	1659	890	See Dr. Schnyder, Cor. Blatt für Schweizer Aerzte, Nos. 10, 11, and 12, 1886.
914 patients of Dr. Schnyder's, from the country.	537	377	" " "
500 of Dr. Brehmer's cases .	319	181	See Brehmer "Die Aetiologie der chronischen Lungenschwindsucht.
88 cases reported by Dr. Churchill, of Paris . .	59	29	
67 cases reported by Dr. Thorowgood.	34	33	
Cases in Royal Infirmary, Edinburgh, 1833, '34, and '35.	365	217	See Reynold's System of Medicine, vol. iii. p. 546.
Consumptives in three Parisian Hospitals, proportioned to the whole number of inmates.	1 : 35	1 : 21	See Ancell, p. 397.
550 deaths in St. George's Hospital in ten years.	388	162	" " p. 763.
Chest Department of Phila. Polyclinic since Jan. 1885.	113	88	
Brompton Hospital for Consumption, from 1842 to 1848.	2682	1597	

the population of each sex living at the time, and in those cases where such a comparison could not be made, as, for instance, in those which were culled from private and public experience, the number of each sex treated is simply stated. In many cities, a larger number of females than of males die of consumption, but with a very few exceptions it appears that the proportionate death-rate from consumption is less among the female than among the male population because, as a rule, here the females outnumber the males.

The statistics which we have collected on this subject are presented in the following order: (1) the reports of health boards, etc., and (2) cases of consumption which have been treated by various practitioners of medicine.

These statistics, which were not selected but comprise all which we were able to examine, so far as they go, establish the fact, beyond a doubt, that in civilized life the male sex is more liable to pulmonary consumption than the female sex. It is true that some instances show exceptions to this rule; but when we, on the other hand, take into consideration that, in these, the mortality difference is slight, and that the great mass of evidence points overwhelmingly in the other direction, the conclusion we have stated becomes inevitable. The hospital statistics presented above likewise point out the same preponderance of the male element in the morbidity and mortality rate of pulmonary consumption. It is well known that, as a general rule, more females present themselves at clinics, dispensaries, and hospitals, than males, yet in all of the returns here given a disparity is shown in favor of the female sex so far as pulmonary consumption is concerned. Thus, an analysis of the clinic record of the Chest Department of the Philadelphia Polyclinic, with which we have been connected, from January 1, 1885, to date, shows that during that time there appeared for treatment 1741 patients, most of whom suffered from pulmonary or cardiac diseases, or from affections allied therewith. Of this number 754 were males, and 987 were females. It will be seen, however, that while the females outnumbered the males in the general chest clinic, the number of males predominated among the consumptives—for of these there were 113 males against 88 females.

Now, the question which naturally presents itself here is, as to whether this greater liability of the male sex to pulmonary consumption is merely the result of chance or accident, or whether it is governed by causes which are as persistent as the phenomenon is regular. We believe that a line of difference so strongly and so clearly drawn as this is cannot be the product of fortuitous circumstances only, and that the cause for its existence is in a great measure inherent in the functional differences which obtain in the breathing of the two sexes.

Since the time of Boerhaave[1] it is known that a fundamental difference exists between male and female breathing, that the former breathes chiefly with the lower portion of the chest—which is called the diaphragmatic or abdominal type of breathing; and that the latter breathes principally with the upper portion of the chest, which is called the costal type of breathing. These types of respiration can be graphically illustrated on a registering cylinder by means of a pneumograph as is shown by the following tracings. The first is a typical tracing of male, and the second a typical tracing of female respiration (see Figs. 1 and 2). The first half of each tracing represents the abdominal, and the second half the costal movements. This order will be observed in all the tracings which appear in this paper unless otherwise indicated.

It will be observed that the contrast between a typical male and female respiration is well brought out by this method of demonstration, the curves of the tracing showing the greatest amplitude in the abdominal and the least in the costal movements of the male, while in those of the female this order is exactly reversed.

Quite recently, and with a view of establishing whether this difference of respiratory motion in the

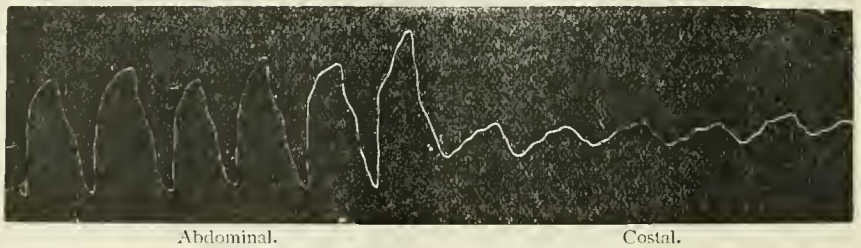
[1] Prælect. Academ., § 623, tom. v. p. 144. Ed. Haller., Amst. 1744.

civilized male and female is primitive or acquired, we had the privilege given to us of investigating the chest' movements of the Indian girls of the Lincoln Institution of this city. All the girls in this school had been brought here in their wild condition, and their bodies had not yet been subjected to the constricting influence of civilized dress, hence it is obvious that such an observation would give us a true representation of the chest movements in their original state. In all we examined the movements of eighty-two chests, and in each case took an abdominal and a costal tracing, of which the following is a typical example (Fig. 3). When the tracing is compared with that which is obtained from the chest of the civilized female (see Fig. 2) it will be observed that a most marked modification has taken place in the movements of the female thorax during the transition period from savage to civilized life. A complete reversal of the type of respiration has taken place; the abdominal type of the Indian becoming the costal type of the civilized female. That this change of type has been effected principally through the influence of civilized dress, and not through the influence of gestation, as was believed by Hutchinson and others, is shown by the following considerations:

1. The costal breathing is much less apparent, and the abdominal breathing is more pronounced in those civilized adult females who have never worn corsets, than in those females accustomed to the use of corsets. This is well shown in Fig. 4, which is a tracing of the respiratory movements of one of those rare specimens of the female sex who has never been invested by a corset.

2. The costal type of respiration is more marked both in the civilized and in the Indian female when the abdominal constriction is tight, and it is less in the civilized, and wanting in the Indian female if the abdominal movements are not restrained by tight dress. Fig. 2 is a typical tracing of the abdominal and costal breathing of a civilized female clad in corset and dress ordinarily tight. Fig. 5 is a tracing of the breathing of the same female after the corset and constricting dress had been removed. We have found that a similar variation in the respiratory

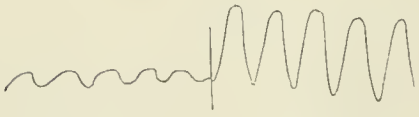
FIG. 1.



Abdominal. Costal.

Tracing taken from chest of a civilized male.

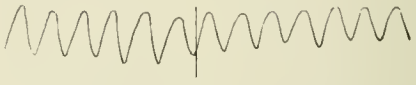
FIG. 2.



Abdominal. Costal.

Tracing taken from chest of a civilized female.

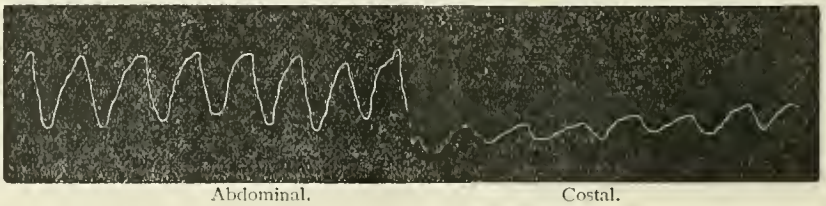
FIG. 4.



Abdominal. Costal.

Tracing of the chest of civilized female who never wore a corset.

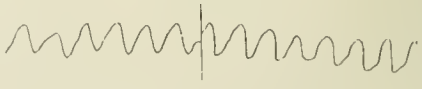
FIG. 3.



Abdominal. Costal.

Tracing taken from chest of Indian female.

FIG. 5.



Abdominal. Costal.

Tracing of same chest with corset off.

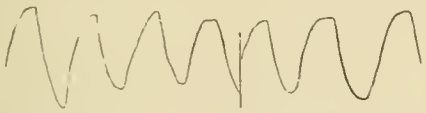
[1] An experimental inquiry into the chest movements of the Indian female. By Thos. J. Mays, M.D. Read before the College of Physicians (Phila.), April 6, 1887, and published in Therapeutic Gazette, May, 1887.

movements of the full-blooded Indian female takes place when her abdominal respiration is interfered with by a constriction.

3. The costal breathing, as a rule, is much more evident in those Indian females who have a mixture of white blood in their veins, than it is in those of pure Indian stock, thus showing, too, that the influence of inheritance plays a part in the modification of the chest movements.

4. The chest movements in the male can be vastly modified by placing a broad band around the abdomen sufficiently tight to interfere with the motion of the diaphragm. Fig. 6 is a tracing of the movements of a male chest after the abdomen was tightly bound with a strong and inelastic belt. In order to observe the modifications which can be thus produced, this figure is to be compared with Fig. 1.

FIG. 6.



Tracing of chest of civilized male, with tight belt around abdomen.

These data demonstrate, then, that the primitive type of respiration in both male and female was abdominal, and that the costal type of respiration which is characteristic of the civilized female differentiated from the original type through the influence of dress. If, therefore, the chest movements are thus readily moulded, even at the will of the experimenter, as has been shown, it becomes an important question to determine whether the influence of dress plays any part, either direct or indirect, in the production of this disease under consideration, both in the male and in the female sex.

When we look into the history of the natural genesis of pulmonary consumption, we find that almost without exception it starts in the apex of either lung. This fact becomes pregnant with forebodings so far as the cause of this disease is concerned, when it is taken in connection with the other fact that the lungs possess a much greater air capacity than is necessary to meet the oxygen demand of the blood, and to carry off the effete products of respiration under the ordinary conditions and surroundings of life. The truth of this is not only confirmed by the many known instances in which persons having large cavities in their lungs, and who are thus deprived of a considerable portion of their breathing surface, are considered well enough for all practical intents and purposes; but also in the many instances in which cavities have been found after death in persons who died from some other cause than consumption, and who were never suspected of having had a process of excavation going on in their lungs during life. The best proof, however, of the correctness of the proposition that the lung-surface is larger than is necessary for the proper aëration of the blood is the experimental evidence[1] which has been recently adduced by Prof. Mosso, of Turin, Italy. The experiment consisted in counting the number of respirations in a given time, and in measuring the amount of air taken in during each respiration by means of an air-clock which was constructed for the purpose, and which through a well fitted mask was connected with the mouth and nose. Observations were made at the sea level, and at different mountain elevations, and it was found that at an elevation of about 10,000 feet the amount of air inspired was nearly twenty-five per cent. less than at the sea level, and although the respirations nearly doubled themselves in frequency, they also became more shallow.

These experiments show then that at or near the sea level man breathes about one-fourth more air than is utilized in his body. This Professor Mosso calls "luxus-athmung" (excessive respiration), and by a similar experiment he shows that the number of ordinary respirations can be reduced to nearly one-half their frequency without entailing much bodily inconvenience at the time. While the possession of such a luxus-respiration, and of the voluntary power to diminish the respiratory frequency to such a great degree, and with apparent impunity, are wise provisions of nature to meet the requirements of many exigencies in life, they are also great elements of danger, and are liable to become a prolific cause of pulmonary consumption. For it is evident that if the blood would consume all the oxygen which is supplied to it during ordinary respiration, the slightest interference with the breathing function would at once manifest itself by a feeling of air-hunger which would stimulate the respiratory function to renewed activity. But this not being the case, it is likewise clear, on the other hand, that in many conditions of life the function of breathing is greatly diminished from sheer force of circumstances, and to the ultimate detriment of the respiratory organ, as we shall see in what follows.

When from any cause such a diminution of the breathing function takes place it is obvious that, if the air reaches all parts of the lungs with equal facility, the diminished activity will be distributed equally throughout these organs and no special part will suffer. This is impossible, however, for on account of a peculiar downward direction of the bronchial tubes there is an unequal expansion during each inspiratory act. The base and middle parts of the lungs always expand before, and always more

[1] Periodische Athmung und Luxus-athmung, von Professor Angelo Mosso, in Turin, Archiv für Physiologie. Du Bois Reymond, Supplement Band (December 8, 1886), p. 37.

completely than the apices, hence the apices are normally the most inactive and the worst ventilated areas in the respiratory organs.

This question therefore arises, What connection is there between the inactivity of the apex and its liability to the beginnings of pulmonary consumption? How does inactivity prepare the apex for the onset of this disease? This can be best answered by stating that inactivity of a whole or a part of an organ implies that its individual or component parts are likewise inactive. The elastic and muscular fibres of the lungs, which assist in expanding and in contracting the pulmonary air-cavities, the arterial and venous capillaries, which serve as channels in which the blood is aërated, the processes of respiration, assimilation, and nutrition are all involved in the affected area.

Now, it becomes no difficult matter to foretell the probable pathological consequences which will follow such a condition as this! It is well known that when a lung, or a part of a lung, suffers in the discharge of its functions, as, for instance, in the acquired or congenital form of atelectasy, a contraction of its elastic tissue fibres occurs which of necessity not only reduces the bulk of the affected spot, but also the calibre of the bloodvessels, thus interfering with the capillary circulation to a degree which ultimately leads to hyperæmia and perchance to a rupture of the bloodvessels of the part. Such a contraction of the lung parenchyma, which undoubtedly takes place, too, in the incipient stage of pulmonary phthisis, serves to explain why it is that long before an active outbreak of the disease, the apex shrinks in volume, and why the lung then admits air with difficulty, as is evinced by a blowing inspiration over the implicated area.

Moreover, it may be stated that, as a rule, all who suffer from consumption of an apex, also suffer from a want of proper expansibility of the overlying chest wall. Indeed, we may say that in our experience we never saw a case in which this was not true at the very onset of the disease. It must not be overlooked, however, that after the disease has passed its first stage, and when serious destruction of the lung tissue is taking place, the respirations become deeper and more active in order that the diminished respiratory surface may satisfy the air-want of the body. This, however, is a direct result of the waste of pulmonary tissue, and the fact remains that all consumptives at the beginning of the disease, or those who have a predisposition to the disease, show a decided tendency to immobility of the upper part of the chest. We have taken a number of tracings of the chest movements of persons who were in the incipient stage of the disease and never failed to find that the costal motion was very much reduced in amplitude both in the male and female sex. Fig. 7 is a typical tracing of the chest of a female while suffering from slight infiltration of the left apex at the time it was taken.

Fig. 7.

Abdominal. Costal.

Tracing of chest of civilized female with corset on, suffering from incipient consumption.

It will be observed that the amplitude of the costal tracing differs but very little from that of the abdominal tracing. If the tracing of this figure is compared with that of Fig. 2, which is a typical tracing of a normal female chest, the difference becomes apparent.

If we now draw a picture of the incipiency of pulmonary consumption from its clinical side we are led to the very same conclusion. Physically it may be said that the first sign of apex trouble is a prolonged expiration, associated with or without dulness. This denotes either a slight condensation or congestion of the subjacent lung tissue. Or, on the other hand, these signs may be accompanied by crepitation, hæmoptysis, and a few moist râles. How often does it happen that a patient comes to his physician in great haste and in a perfectly demoralized mental condition, saying, "Doctor, I have no cough, no expectoration, and I feel as well as ever I did in my life, but this morning I spat up some blood. Do you think it comes from my lungs?" On inquiry it will probably be found that the patient is following a sedentary occupation within doors, seldom takes much exercise, does not eat as well as formerly, and has been slightly losing in weight, but shows no other abnormal symptom. Physical examination discloses a slight impaired percussion resonance, a prolonged expiration, and a few clicks in the right apex. There is much reason to believe that, if the close dependency between cause and effect above outlined holds true, in this case the patient's destiny would have been greatly changed if he had led an active outdoor life, and had taken care to develop the capacity of his chest instead of stunting it by a stooping position which his vocation demanded of him. This is not an overdrawn picture.

Examination of any mortality table will reveal the fact that pulmonary consumption claims its largest number of victims from that class of employés who spend their days within doors, and who cramp their chest by a sitting posture. Again, there is no doubt that the hemorrhage from which many of such patients suffer is simply due to a rupture of the overstrained and hyperæmic capillaries, consequent on a partial impermeability of that portion of the lung surface from which the hæmoptysis emanates, and may be regarded as an indirect bene-

fit rather than an injury, on account of the relief which it affords to the overdistended circulation.

Having seen then that in the aggregate more civilized males than females die of pulmonary consumption; that the costal respiration of the civilized female is developed through the constricting influence of dress around the abdomen; that the lungs possess an excessive breathing surface which by sedentary occupations, etc., can be, and is frequently reduced in a great degree; that the baneful results of such a reduction, consisting of hyperæmia, etc., fall with the greatest force on the apex of the lung; that all those who suffer from consumption also show a decided tendency to immobility of the upper part of the chest, are we not, therefore, justified in believing that a defective costal respiration and the beginning of pulmonary consumption stand in relation to each other as cause and effect? And, going one step further, is it not clear, that the civilized female owes her greater immunity from this disease, in a great measure, to the fact that she possesses a more highly developed costal expansion? If these relations exist it is quite obvious that her manner of dress is a direct factor in bringing about this result. She has, by force of necessity, been led to clothe herself after a method which demands a restriction of the abdominal and diaphragmatic movements, and which cultivates a greater development of the costal portion of the breathing organs, and, thereby, she unconsciously protects herself to a greater degree against this disease; while the male, on the other hand, dresses himself after a fashion which secures perfect freedom of motion to the diaphragm and to the abdominal muscles, but which also attracts and tends to confine the respiratory function to the lower portion of the chest. Moreover, it must not be forgotten that the same fashion also demands that his clothing should be suspended from the shoulders, which of itself restricts the movements of the upper portion of the chest; making it evident, therefore, that his clothing renders him, both indirectly and directly, more liable to the disease under consideration. To this conclusion, and to no other, do our facts and reasoning lead.

In connection with this part of our subject it would be interesting to trace the relative liability of the two sexes of the civilized and of the uncivilized races to pulmonary consumption, if the necessary data were at hand; for if the peculiar dress of the civilized female diminishes her susceptibility to this disease, then the uncivilized female, who wears no or very little constriction around her abdomen, ought, if other things are equal, to be more liable to it than her more fortunate sister, and ought also to show at least as high, or a higher death-rate than the male of her own race. That the death-rate from consumption among the reservation Indians, or among those who have but recently come in contact with civilization, is much higher than that of the civilized race, we have shown in a previous communication,[1] but whether the uncivilized female is more prone to this disease than the uncivilized male is not so certain. Dr. O. G. Given, physician to the Indian school at Carlisle, who has enjoyed an extensive medical experience among the Indians, states in a private letter to us "that among the Indians, as a general thing, the women are less subject to consumption than the men. The men, as a rule, are not so well developed, physically, as the women, and are the drones of the Indian camp, while the women are the working bees." This statement, which is also corroborated by other testimony, is very important, inasmuch as it demonstrates that the domestic relation between the Indian male and female is the very reverse of that which exists between the civilized male and female. In civilized life the male leads the active industrious life, while in the uncivilized community the female constitutes the energetic factor; she for the most part cultivates the crops and sustains the family, while the male sinks into a state of idleness and crime from which he readily merges into disease. Under these circumstances it would be aimless work to attempt a comparison. Evidence is not wanting to show us, however, that when these people are taken out of their wild haunts, and when the two sexes are brought into analogous relative positions to those which are held by the civilized sexes—*i. e.*, when they are housed, fed, and clothed like their civilized brethren, and when they are engaged in similar pursuits—there is very little difference in the death-rate from consumption. This opinion is based on a limited number of statistics which we extracted from the annual reports of the Indian Schools in Philadelphia, Carlisle, Pa., and Hampton, Va.; covering a period of three years in the first school, and five years in the two last instances—all of which show that, on the whole, the liability of the two sexes to consumption is about equal.

So far as this question affects the negro race our limited statistics show as marked a difference in the liability of the two sexes to consumption as that which obtains in the white race. These people have, however, been so long in contact with the higher form of civilization that their bodies have also, in a great measure, been moulded by the influence of the mode of dress which they copied from their white deliverers. From a considerable number of observations on the chest movements of adult colored females we find that in the majority of instances the costal expansion, while not fully equal to that of the white female, is still quite largely developed. The only noticeable difference, not so markedly shown

[1] Does Pulmonary Consumption tend to Exterminate the American Indian? By Thomas J. Mays, M.D. New York Medical Journal, May 7, 1887.

in the white female, is that, when the abdominal constriction is removed in those colored females who are accustomed to wear tight dress, the costal breathing is less and the abdominal breathing more prominent than when this is not removed; while in the colored female children, who have been subjected to very little abdominal constriction, there is, as a rule, a greater conspicuousness of the abdominal breathing, showing, probably in both cases, a greater tendency to revert to the original type of breathing than in the white female.

The evidence which has thus far been gathered from statistical, experimental, and inductive grounds all tends to demonstrate that impairment of the respiratory movements of the upper portion of the lungs is one of the principal direct causes of pulmonary consumption. Indeed, all the proof goes to show that in many conditions of life, especially in many of those to which the male sex is exposed, the apices of the lungs become superfluous parts of the body, and, on this account, possess a strong tendency to that premature waste which is characteristic of all organs when they fall into a state of inactivity. The practical solution of the problem of the prevention of pulmonary consumption, as well as of the cure in many cases, therefore consists in the adoption of measures which tend to increase the chest capacity, and which maintain the general and local health of the individual.

The treatment, so far as prevention is concerned, resolves itself into a proper exercise of the chest muscles, into systematic breathing, and into the rational employment of compressed and rarefied air; but since it is our purpose to treat the prevention of this disease with more fulness in a succeeding contribution, we shall only briefly touch upon the most salient points of the subject in this paper. First, then, as to a *proper training of the chest muscles.* This is accomplished by raising the shoulders, and by swinging the arms backward, forward, and upward, either with or without dumbbells, or by exercising on parallel bars, care being taken that a full inspiration is taken every time that the arms are thrown backward and upward, or the body forward, and that a complete expiration occurs when the arms are brought together in front, or when the body is thrown backward. These movements should be performed regularly, and from sixteen to twenty times in a minute. There are a number of appliances in the market which are worked by means of ropes, weights, and pulleys, and which are admirably adapted for the enhancement of the above-described movements. They are very simple, and can be attached to the wall of the nursery or of the sleeping-room, and not only afford a healthful exercise, but a pleasant amusement for both children and adults. These exercises should be employed every morning and evening, and from fifteen to twenty minutes, or even longer at a time, but they should never be pushed to fatigue.

Second—Sytematic breathing. Deep, voluntary breathing should be encouraged and practised on every occasion, not continuously, but at intervals throughout the day. This should be done in the counting-room, in the workshop, in the home, and out of doors. Care, of course, should be taken that the air is inhaled only through the nose, especially in the open air, so that the latter is fairly warmed before it reaches the lungs. The breathing should occur at natural and regular intervals of from fifteen to twenty times in a minute. Walking, running, dancing, jumping rope, etc., will add materially to the efficacy of this method of respiration.

Third.—Compressed and rarefied air. Of all the means which have come into use for the purpose of developing the lung capacity, we are convinced that none exceeds in value that of the inhalation of compressed and exhalation into rarefied air. We have devised a pneumatic apparatus, somewhat after that of Weil, which answers this purpose effectually. It is manufactured by Mr. James Wilson, chief of the optical department in Wanamaker's depot. The method produces such a powerful physiological impression that it has already earned for itself a permanent place among the important measures of pulmonary therapeutics. When the individual thus breathes out of compressed air, and breathes into rarefied air successively, the whole chest and especially the apices will procure more perfect ventilation than can be obtained by any other known procedure. The following tracings (Figs. 8 and 9), when compared with the costal tracing of Fig. 1, demonstrate this: Fig. 8 is a tracing of the costal movements,

Fig. 8.

Tracing of the costal movements of a male chest during forced respiration.

when forced during voluntary efforts, and Fig. 9 is that of the same movements while inhaling com-

Fig. 9.

The same movements while inhaling compressed and exhaling into rarefied air.

pressed and exhaling into rarefied air. The greater amplitude of the tracings in the latter indicates deeper, slower, and more complete breathing.

The evidence which has thus far been brought together goes to show that a want of expansibility of the lung apices is one of the most fruitful sources of pulmonary mischief, and that the most effectual means of prevention lie in the methods which tend to oppose this condition. The problem of prevention is not one, however, which can be solved in a short time; but the exercises must be pursued to such an extent that their effects will become a part of the function of respiration; and not until this is properly understood and faithfully carried out will pulmonary consumption begin to lose its terror, and cease to spread death and desolation in our homes.

1829 SPRUCE STREET, PHILADELPHIA,
November 18, 1887.

THE VALUE OF ACETANILID IN ENTERIC FEVER.

BY J. HOWELL WAY, M.D.,
OF WAYNESVILLE, N. C

PERHAPS never before in the history of scientific medicine have new pharmaceutical products been received with that degree of avidity, and so readily given an extended trial in the treatment of disease as the recently introduced antipyretics, antipyrin and its more powerful congener acetanilid or antifebrin. Starting from the place of its discovery in Germany, little more than three years since, the use of the former of these agents spread quickly through the great hospitals and the larger cities of Europe and America, until to-day one can scarcely find a village or hamlet whose medical faculty are not conversant with its therapeutic use.

And while not quite a year has passed since Cahn and Hepp, after studying its effects in Kussmaul's wards at Strasburg, gave to the medical world a full account of their observations on the effects of acetanilid, based on its use in sixty cases,[1] yet in this brief time its use has become, perhaps, as widely extended as that of antipyrin. The uncertainty, and ofttimes inefficiency, of quinine, kairin, chinolin, etc., as antipyretics, and the risks of fatal cardiac depression necessarily attendant on the use of veratrum, aconite, digitalis, and other remedies that lowered pyrexia by reducing the power of the circulatory forces, in doses sufficient to produce decided antipyretic effects, had wrought in the minds of many of the profession the impression that, save the use of cold, we possessed no antipyretic that was efficient, safe, and reliable, no agent which would certainly reduce hyperpyrexia without the introduction into the case of elements of danger often more serious in their nature than a moderate degree of fever heat. Using the language of personification in reference to these new antipyretics, we may say here was indeed their therapeutic opportunity, and their claims were pressed with that degree of enthusiasm usually attending the introduction of new remedial agents.

Observing the extended use of these recent additions to our therapeutic armamentarium, the question —Have these agents fulfilled the reasonable expectations of the profession or not?—naturally suggests itself. Without attempting to reply to this query as a whole, I shall in this paper limit myself to a brief consideration of the value of acetanilid or antifebrin, in the treatment of one of the most important of the febrile affections namely, typhoid or enteric fever.

When I first began the use of antifebrin, I bore with me the painful remembrance of a severe case of typhoid fever which had been doing well up to the end of the second week of the disease, when it came under my observation. During the early part of the third week, the temperature, which had been usually rising during the evening exacerbation to 104.5° F., rose to 105.4° F. one afternoon. Thinking here was an admirable opportunity of giving antipyrin a trial, it was administered as recommended by Brunton,[1] in "thirty grain doses hourly for three hours." The temperature, as taken for me by an attendant one hour after the administration of the last dose, was 96° F.! An hour later, on visiting my patient, I found him in a condition of extreme collapse, and, despite the most active stimulation, he succumbed in less than six hours after receiving the last dose of antipyrin. Afterward I never witnessed any evil effects from the drug, though using it frequently, but in greatly reduced doses, never giving it in larger amounts than ten grains. And while Cahn and Hepp[2] claimed, as a deduction from experiments on the lower animals, that fully two hundred grains would be required to produce a fatal issue in a healthy man, and had themselves given to human beings sixty grains per day of acetanilid without noting any ill effects, from my experience with antipyrin, I was not prepared to accept unreservedly the dictum of authority, but began the use of antifebrin by administering it in small doses of from two to four grains.

During the present autumn I have treated in private practice thirteen cases of enteric fever after the following general plan of treatment, with some slight variations to suit individual cases. When seen during the first few days of the disease, a sharp mercurial purge was induced, and afterward, when necessary, the frequency of the motions was regulated by the administration of opium. This, however, was rarely the case, as in the majority of the cases of enteric fever met with here the diarrhœa does not often become so aggravated as to demand treatment

[1] Berliner klin. Wochenschrift, Nos. 1 and 2, 1887.

[1] Pharm., Mat. Med., and Therap., 1885, p. 696.
[2] Op. cit.

especially directed to it. If not seen early, the mercurial was omitted. From the establishing of the diagnosis until the subsidence of the fever, quinine was given in two grain doses every four hours. Antifebrin was given as follows: in eight cases, two grain doses were administered at 1 P.M. and again at 5 P.M. In two of these cases it was found necessary to give another two grain dose at 9 P.M. In three cases the antifebrin was given in one and a half grain doses at 1 P.M. and at 5 P.M.; and in one of them the same amount was given again at 9 P.M. One of the two remaining cases had three grain doses at 1 P.M., and at 5 P.M.; the other received two one grain doses per day, at 1 P.M., and at 5 P.M. In about one-half of the cases cold sponging was resorted to from three to six times per day.

The highest point of febrile range reached in the evening exacerbation of any of the cases was 106.2° F.; the lowest 103.5° F., the average temperature in the evening exacerbation of the cases was 104.4° F. This observation was made in each case on a day at the close of the second week, when the disease was at its height; the antifebrin being suspended one day for this special purpose.

All of the cases made good recoveries; the average duration of the fever was twenty-two days. The patients were all young persons, ranging in age from fifteen to thirty-seven years; eight were males, and five females. In none of the cases were the slightest evil effects observed to follow the use of the acetanilid, save in a single instance where the patient complained of a slight degree of chilliness coming on soon after the drug was taken. In this case after reducing the dose from two grains to half that amount the temperature was satisfactorily reduced and the chilliness was not experienced. In every case the use of the drug in the doses indicated above invariably wrought a reduction in the temperature of from 1.8° F. to 3.4° F. The average reduction of temperature by the use of acetanilid in the thirteen cases as obtained by a comparison of the temperature of one day when the disease was at its height, and the temperature under the influence of antifebrin, with the day on which the administration of the drug was suspended, was 2.4° F. The effects of acetanilid on the cardiac action were frequently and carefully noted from day to day, and at no time were evidences of weakness or debility attributed to its use observed.

Per contra, I found that, regarding the cardiac condition, less need for the use of alcoholics arose during the progress of the disease than in cases treated after the most approved methods of a year or two past. In addition to this the degree of muscular prostration and exhaustion was not so marked as I have noticed when pursuing the methods of treatment recommended in our standard text-books. These results are, of course, readily explained by the efficient action of the acetanilid in lowering the temperature, thereby lessening the tendency to, and the amount of, granular degeneration of the muscular tissues very much more than in cases treated by the older methods, under which the febrile range could not be so readily controlled.

After the first few doses of the drug were administered in a case it was always noted that patients when fully cognizant of their surroundings, looked forward with interest to the hour for taking the antifebrin, alleging that it made them feel much more comfortable; and it was a matter of daily observation that the muttering delirium was invariably quieted, and the patients often sank into a peaceful slumber when the antifebrin began to produce its effect.

Though, perhaps, the number of cases observed may be too few to justify such a conclusion, I am constrained to believe that in acetanilid we possess our most valuable agent in the treatment of enteric fever attended with hyperpyrexia. Like other valuable agents, its use is likely to be abused, and when injudiciously administered it may prove a two-edged sword cutting for evil as well as good. The reports of cases of cardiac failure and collapse which have recently been appearing in the columns of various journals have, generally speaking, had their origin in the improper and injudicious administration of the drug, *i. e., from the administration of the toxic and not the medicinal dose of the drug.*

In conclusion the following advantages may, I think, be claimed with justice for antifebrin over all other antipyretics in the management of the hyperpyrexia of enteric fever.

1. The size of the dose is small and from the bland and unirritating character of the drug is easy of administration and not liable to produce gastric irritation.

2. The happy effect of the drug in reducing hypernormal temperature and in rendering the patient more comfortable by its soothing effects on the erethitic state of the nervous system accompanying febrile processes.

3. The absolute safety of acetanilid when used in medicinal doses. This conclusion may at present be called into question, but I am fully convinced that when we cease to give our patients *toxic* doses of the drug that cases of collapse and cardiac failure will cease to be observed.

MEDICAL PROGRESS.

Treatment of Empyema without Resection of the Ribs. —At a recent meeting of the Chicago Medical Society Dr. E. Fletcher Ingals described his method of

draining the chest in empyema, without resection, as follows:

The method that I have used in introducing drainage tubes would, perhaps, be of some interest. At present I use a broad flat trocar that is wide enough to allow the introduction of two of these tubes at once, that is, two tubes with an inside diameter of one-eighth inch. First making a very small opening in the skin with a scalpel, the trocar is then plunged in the cavity, and as the stylet is withdrawn, I place my thumb over the canula to stop the flow of pus; the tubes that have been prepared beforehand, are then slipped rapidly through the canula to the required depth, and the canula is at once withdrawn. No air will have entered the chest and not more than two ounces of pus will have escaped. To make the tubes I take a piece of two feet in length, cut it half way across near the middle, fold it on itself and stitch the two sides together so that the tubes can be spread apart in the chest. In one of these tubes I make openings for about four inches, in the other one or two openings close to its extremity. The outer ends of the tubes are tied tightly so that the pus will not flow till I am ready to fasten in the tubes. I cut off two half-inch sections from the same tubing and pass through each two bits of string, the ends of which are tied in loops; these are carried over the drainage tubes down to the surface of the chest; long strips of adhesive plaster are then passed through the loop and fastened to the chest, when the tubes will be firmly fixed. I then carry a roller bandage around the chest over the strips and the dressing is complete. If the patient is in good condition, I then attach to each drainage tube, by means of a bit of glass tubing, longer sections of tubing which have been filled with water, that can reach to the bottom of a basin of water sitting on the floor; the strings which have fastened the ends of the drainage tube are then cut and the pus allowed to escape, or such part of it as is deemed advisable. I recall one case in which I am satisfied if I had allowed any quantity of pus to escape at first it would have been fatal. On one or two occasions I did allow more to escape than was desirable, and I had to inject water into the chest to replace it.

The after-treatment that I have employed consists mainly in washing out the chest twice a day with a solution of carbolic acid, 2 per cent., at 100° F.—*Journal of the American Medical Association*, December 17, 1887.

When Shall Digitalis not be Given?—HUCHARD describes cardiac paralysis produced by digitalis as *digitalis asystolie*, and affirms that by the improper use of the drug it may be grafted upon valvular *asystolie*. This accident may occur

1. When the cardiac muscle is extensively degenerated; digitalis, by its failure to secure response of the heart-muscle, is a valuable means of diagnosticating this condition.

2. There are two stages of the modifications which the viscera undergo in heart diseases; one is the stage of venous engorgement, without marked parenchymatous changes; the other is the stage of sclerosis.

In the first of these conditions digitalis is of great value; in the second, it is most harmful.

When digitalis is contraindicated, Huchard employs caffeine, in doses of from fifteen to twenty-five grains daily.—*Revue Clinique et de Thérap.*, Dec. 8, 1887.

The Abortive Treatment of Buboes.—MANNINO has treated twenty-seven cases of bubo successfully by injecting them every two days with a very small amount of one per cent. solution of corrosive sublimate. A few drops of pus are aspirated at first, and replaced by a few drops of sublimate solution.—*Wiener medizinische Presse*, No. 47, 1887.

Intestinal Antisepsis in Typhoid Fever.—BOUCHARD has found the following formulæ useful in typhoid fever:

An iodoform mixture.

Iodoform.	gr. 9.
Æther. sulphuric.	ʒ 17½.
Carbo. vegetab. pulver. . . .	ʒ 50.

Mix, and after the ether has evaporated, add

Glycerin.	ʒ 45.

Of this, a teaspoonful may be given every two hours in half a glass of lemonade.

Iodoform, in powder, may be given as follows:

Carbo. ligni. pulv.	ʒ 25.
Æther. sulphur.	ʒ 17½.
Iodoform.	gr. 15

The iodoform must be dissolved in ether, and the charcoal added. Dose, a teaspoonful.

A salicylate of bismuth powder may be prepared as follows:

Carbon.	ʒ 12½.
Sacchar.	ʒ 6¼.
Naphthol. (β)	gr. 40.
Bismuth. salicylat. . . .	gr. 40.—M.

To be taken during twenty-four hours.—*Le Bulletin Médical*, December 7, 1887.

Laryngeal Tuberculosis.—ARIZA, of Barcelona, is quoted as follows by the *Journal of Laryngology* for December, 1887, in his experience in this disease: Out of twenty phthisical patients seen by Ariza during the term 1885–1886, in the *Instituto de Terapéutica Operatoria de Madrid*, sixteen were men and four women; their ages ranged between sixteen and sixty-four years. The etiological causes were unknown, but in nearly all the cases there was some pathological relation between the larynx and the lungs. The cause of the affection was always chronic in the first-named organ, while chronicism and acuteness varied in the lungs. Ariza maintains the curability of laryngeal tuberculosis when the lung is sound or only slightly affected, though the lesions of the larynx may compel tracheotomy; and he records the case of a lady patient who, after having been tracheotomized, had an absorptive fever, with copious sweating, purulent expectoration with detritus of the tissues, and pieces of necrosed cartilage, until a time arrived at which the elimination of the tuberculous engorgements ended, and the patient was cured of her laryngitis. The forms of tuberculosis observed in twenty patients were the hypertrophic, the polypous, and the ulcerative. The treatment consisted in touching the ulcers with iodoform, carbolized and boric solutions, as well as with lactic acid and nitrate of silver; in removing the pediculated polypi, and in cauterizing the sessile ones with chromic acid or galvanocautery, and using for hypertrophies galvano-caustic punctures.

A New Preparation of Iron.—CHICAUDARD has prepared the sulphate of the protoxide of iron and ammonia as follows:

He dissolved separately 139 parts of sulphate of iron and 66 of sulphate of ammonia in as little water as possible, at 104° F. He mixed the solutions in a glass vessel, and added a few drops of sulphuric acid and stirred well with a glass rod.

The salt precipitates in small, greenish-white crystals. It is soluble to the extent of seventeen or fifteen per cent. in water. Chicaudard regards this salt of iron as a new and convenient one for physician's use.—*Journal de Médecine*, December 4, 1887.

Ergotin in Suppositories in the Treatment of Uterine Fibromata.—BELL has found the following suppository convenient in administering ergotin for uterine fibromata:

Ergotin	gr. 4 to 8.
Ol. theobrom.	gr. 25.
Vaselin.	gr. 5.

To be used per rectum.

These suppositories are also convenient in menorrhagia and metritis.—*Gazette de Gynécologie*, December 1, 1887.

The Influence of Antipyrin upon Nutrition.—At a recent meeting of the Academy of Médecine of Paris, ROBIN read a paper upon the influence of antipyrin on nutrition. His conclusions are as follows: Antipyrin limits the metabolism of the nervous system, thus limiting its excitability. It diminishes organic disintegration and oxidation, producing a corresponding relative excess of uric acid and nitrogenous waste. Antipyrin possesses antiseptic properties, proved in the living organism and in the laboratory.

From these conclusions he deduces the following clinical indications: Antipyrin is of value in neuroses; its value in fevers is not permanent; its antiseptic value, in very moderate doses, indicates its use in phthisis.

VERNEUIL added the report of two cases of septicæmia, following surgical operation, in which antipyrin, in thirty grain doses, morning and evening, was of the greatest value.—*L'Union Médicale*, December 8, 1887.

The Micrococcus of Beri-beri.—DR. C. A. PEKELHARING, of Atchin, after many attempts and successive failures, has succeeded in making plate cultures of microorganisms from cases of beri-beri; they are in appearance like diplococci, and form a milk-white smooth layer on the surface of agar-agar, which becomes very slowly liquefied. With the culture several rabbits and dogs were inoculated by means of injections under the skin or into the abdominal cavity, or by merely sprinkling the liquid culture about in the cage where the animals were kept. Most of those so treated became affected. One rabbit died nine days after the first of four injections with symptoms of paralysis of the respiratory apparatus and of the hind feet; another rabbit, which was given five injections, died thirty days after the first injection, and much less nerve degeneration was found than in the first rabbit. The animals were always injected several times, as Dr. Pekelharing believed that only repeated doses of the beri-beri poison were usually sufficient to induce the disease, persons who merely visited a barrack where the disease seemed to be endemic not being affected. It is important to note that considerable degeneration was found in the nerves of the hind feet of animals which had during life merely exhibited a slowness of movement. It was found possible to infect animals by injecting bacteria obtained from the air of a barrack where the disease was prevalent, and in these animals the characteristic micrococci and nerve degeneration were observed. This shows the importance of purifying the air of places where the disease occurs.—*British Medical Journal*, Nov. 26, 1887.

For Pulmonary Phthisis.—SCHOULL has obtained good results from

R.—Creasot.	gr. ¾.
Iodoform.	gr. ⅙.
Sodii arseniat.	gr. $\frac{1}{30}$.
Boraginis	gr. ¾.
Benzoin, Magnesiæ	āā q. s.

in pill form, taken with meals.—*Gazette Hebdomadaire*, November 25, 1887.

Removal of a Spoon from the Small Intestine; Recovery.—DR. WALKER reported, at a recent meeting of the Cincinnati Academy of Medicine, the case of a sword-swallower, who, on a wager, swallowed a spoon. It gave him no annoyance for three and one-half years, when it passed from the stomach, and became impacted in the intestine. To relieve the well-marked symptoms of intestinal occlusion, the following operation was performed:

An incision was made in the median line about two inches in length, below the umbilicus. The tissues were divided down to the peritoneum. At the point where the hard body could be felt, there had been great inflammatory thickening. With the needle of a hypodermatic syringe the spoon was plainly felt through this thickened mass. A small incision was made directly over the point where the spoon was situated, as shown by the needle, through this new formed tissue, and a probe passed in to find the direction the gut took. This incision was then enlarged and the handle of the spoon presented. By a slow lateral motion the bowl of the spoon was loosened, and, finally, after some coaxing, was removed. The spoon was six inches in length, the breadth of the bowl was an inch, and the length two and one-quarter inches. After the removal of the spoon, the wound in the bowel was sewed up with three silk sutures. The external wound was closed with silver wire. The wound was dressed antiseptically. The bowel and the tissues adherent to it made the wall of the bowel fully one-half of an inch thick at this point. The peritoneal cavity was not opened at all in the operation. The dangers of it, of course, were therefore much lessened.

After the operation the patient did well. The temperature never was above 100°. The pain in the abdomen was immediately relieved. The bladder trouble disappeared. The stitches were removed on the sixth day, union having taken place. On the seventh day fecal matter began to be discharged from the wound. This kept up for nine days, when the fistula closed again. On the eighth day after the operation the patient had a large operation. The feces contained no blood. The patient was discharged from the hospital—well. What was most feared, a contraction of the canal at the point of incision,

did not occur. The patient has regular stools, and is as well as he ever was.—*Cincinnati Lancet-Clinic*, December 10, 1887.

Naphthalin for Chronic Cystitis.—In addition to the evidence already reported of the value of this substance, the surgeons of the Hospital Necker, in Paris, have recently obtained excellent results by giving naphthalin in powder, in quantities of from 8 to 20 grains to 30 grains in twenty-four hours. It is best given in doses of 1½ to 3 grains, combined with equal parts of sugar, and flavored with an alcoholic preparation of peppermint.—*L'Abeille Médicale*, November 21, 1887.

The Results of the Treatment of Prolapsus Uteri by Colporrhaphy.—The results of this mode of treatment among the German gynecologists, as reported at the recent Wiesbaden meeting, were as follows: 105 cases of prolapsus uteri were treated in five years time in SCHRÖDER'S practice and in his clinic. 88 of these cases were treated in the clinic, and 17 were private patients. The suture material used was catgut, prepared in oil of juniper. Of 123 colporrhaphies, made for various causes, and in which catgut was used, 97 healed by first intention; 24 had an unimportant defect in union; 2 did not heal because of infection. Of the cases of prolapsus uteri, 80 were healed; 2 died; the remainder either showed a bad result or went from observation. In 60 of the clinical cases (88 in all) the subsequent history of the patient was ascertained to determine the question of relapse. It was found that in 23 of the 60 clinical cases a return of the prolapsus uteri occurred. In 13 private cases only 1 showed a return. In the 105 cases 2 died, 1 from chronic nephritis; 1 from marasmus. Of all the cases, clinical and private, operated upon, 67.5 per cent. recovered. Of clinical cases 57 per cent. were cured; of private cases 86.7 per cent. recovered.

The results were reported by members of the clinical staff of the late Professor Schröder.—*Therapeutische Monatshefte*, November, 1887.

For Inhalation in Phthisis.—FILLEAU and PETIT have found the following a most useful preparation for inhalation:

Acid. carbolic.	gr. 30.
Essent. terebinth.	℥ 12½.
Essent. picis	℥ 5.
Eucalyptol. (Merck)	℥ 7½.
Chloroform.	gtt. 5.

Inhalations of five minutes each are advised, four or six times daily.—*Revue de Thérapeutique*, December 1, 1887.

Scrofulosis and Tuberculosis in Children.—NODDECHEN is quoted by the *Centralblatt für Kinderheilkunde*, No. 19, 1887, in the following conclusions, from a series of extended articles:

1. Scrofulosis and tuberculosis are not identical; scrofulosis is hereditary, and not infectious; tuberculosis is infectious, and not hereditary.

2. Scrofulosis is the best condition for the development of tuberculosis; when, in scrofulous tuberculosis, tubercle bacilli are found, we have to do with tuberculosis.

3. The relationship of the bacillus to broken-down, cheesy scrofulous matter, and the fact that by the injection of scrofulous pus tubercle is produced, are as yet not explained; we must believe, however, in the causal relation of the bacillus.

4. Hereditary scrofulosis and hereditary tendency to tuberculosis are identical.

5. If tubercle bacillus fail to find access, scrofulosis may recover; this happens not infrequently.

6. Tuberculosis may be produced by direct infection, without preëxisting scrofulosis.

Iodol in Surgery among Children.—DEMME is quoted by the *Archives of Pediatrics* for November, 1887, as using iodol as follows, among children:

1. As a powder to be sprinkled over deep wounds, for example, after scraping away tuberculous deposits.

2. Upon ulcerative necrotic surfaces, such as may be produced by extensive burns.

3. As a powder to be sprinkled over fresh incised or lacerated wounds.

The wounds are subsequently covered with a dressing of boric lint, over which is a layer of cotton-wool. The dressing is renewed every two to five days, and it has usually been found that the secretions are odorless, and the granulations healthy in appearance. Compared with iodoform, it does not become encrusted with the secretions like the latter, which is sometimes detached with difficulty, and may excite hemorrhage. In removing the iodol from a wound it is best to wash it away with a one per cent. solution of carbolic acid, or a two per cent. solution of boric acid. Tampons of cotton or of borated lint charged with oil of iodol or iodolated glycerin in the proportion of one of iodol to two or four of glycerin may be used to fill cavities which have been opened and scraped. Iodolated gauze of the same percentage strength and similarly prepared as iodoform gauze may be used as a substitute for the latter. Under the use of this gauze the granulation process progresses more satisfactorily than with the use of the oil of iodol or the iodolated glycerin. No symptoms of poisoning nor any harmful effects upon the digestive organs were observed from the use of the iodol. In two cases of extensive burns in which a large quantity of the iodolated glycerin was used, iodine was recovered from the urine one and a half hours after its use was begun. The local antiseptic action of the iodol appears to consist in the permanent separation of a very small quantity of iodine at the surface of application. Before or after absorption more or less of it probably combines with certain alkalies and albuminoids. It is not proper to lose sight of the possibility that the system may undergo toxic effects from iodol in the same way that it does from iodoform.

Geoline.—From *Il Progresso Medico*, we learn that this substance has been used by the ophthalmologists in the hospitals of Naples, and that it has proved a satisfactory base for ointments. It is made from petroleum; is pale yellow; transparent; odorless; containing no fatty matter; is neutral; does not crystallize or oxidize; is not altered by heat, cold, or acids. It melts at 113° F., and combines easily with metals and alkalies.

Antifebrin in Severe Variola.—HAAS, of Prague, has studied the effect of antifebrin in severe cases of confluent variola, and found that in comparatively small doses anti-

febrin lowered temperature, relieved the nervous disturbances of the disease, and prevented in some degree the extensive injuries to the tissues occurring in the worst cases.—*Wiener medizinische Presse*, No. 47, 1887.

Valerianate of Atropia in Whooping-cough.—MICHÉA prescribes, with good results:

Infus. buchu	℥ 30.
Syrup. balsam. tolut.	℥ 2½.
Atropiæ valerian.	gr. $\frac{1}{60}$.

A teaspoonful hourly, as needed.—*Revue de Thérapeutique*, December 1, 1887.

Cocaine a Hæmostatic in Rhino-surgery.—RUAULT is quoted by the *Journal of Laryngology* for December, 1887, as follows, on this subject:

Cocaine is not merely a local anæsthetic, but also a local vaso-constrictor, for the lessening in volume of the nasal mucous membrane produced by this agent is owing to the rapid depletion of the submucous erectile tissue. These two properties of cocaine are independent of one another; the disappearance of sensibility is not due to local anæmia, since tissues deprived of vessels—*e.g.*, the turbinated bodies—are rendered anæsthetic with the greatest ease. The vaso-constrictor result is not due to direct action on the vessels; Bosworth has noticed that this action is confined to the venous sinuses, and does not extend to the capillaries. Indeed, cocaine does not make the nasal mucosa any paler than before the application, and it is, therefore, probable that this loss of blood is due to a reflex action making itself felt on the small arteries and the smooth fibres of the erectile tissue. Ruault has employed cocaine for two years as a hæmostatic, and uses solutions of twenty per cent. to thirty per cent.; he soaks a plug of cotton-wool in the fluid, and leaves it in the nasal cavities for at least nine minutes. In spontaneous epistaxis the plug should be left in for two or three hours. The author has stopped thus a certain number of hemorrhages: one of the patients had been obliged previously to submit to tampons. The use of cocaine also arrests the hemorrhage following nasal operations—*e.g.*, ablation of polypi.

Extirpation of the Larynx.—SIR MORELL MACKENZIE, in the *Journal of Laryngology* for December, 1887, has collected 103 cases of extirpation of the larynx for carcinoma, 8 cases for sarcoma, and 6 for other causes, a total of 117. Of these, 12, or about ten per cent., lived twelve months after the operation.

Cases of Excision of the Tongue for Cancer.—BERNAYS, of St. Louis, reports in the *St. Louis Medical and Surgical Journal* for December, 1887, three cases of excision of the tongue for cancer, of which two made good recoveries; one died of septic pneumonia.

The operations were performed after Kocher's method, and under full antisepsis.

The Treatment of Uræmia.—LANCEREAUX prescribes, to favor the secretion of urine,

Pulv. scillæ,	
Pulv. scammon.,	
Pulv. digital.	āā gr. ¼.

In one pill.

From four to six may be taken daily for from five to six days.

ROLAND prefers the following combination, which acts on all the emunctories:

Ext. jaborandi (alcohol),	
Ext. scillæ,	
Resin. jalap.,	
Resin. scammon. . . .	āā gr. ¼.

In one pill.

Four or five pills may be taken daily, for several days. If preferred, nitrate of pilocarpine may be substituted for jaborandi, in doses of from $\frac{1}{35}$th to $\frac{1}{75}$th of a grain.—*Revue de Clinique et de Thérapeutique*, Dec. 8, 1887.

The Absence of Microbes in Expired Air.—At a recent meeting of the Academy of Sciences of Paris on December 5, 1887, STRAUSS and DUBREUILH reported a series of bacteriological experiments upon expired air. They confirm the result arrived at by Tyndall, that expired air is *optically* pure, and add the further fact that expired air contains no microbes. Grancher, Charrin, and Karth have failed to find tubercle bacilli in expired air from phthisical patients. The fact seems to be that the lungs act as filters, gases being freely expired, but particles being retained. The observations of Pasteur, Lemaire, and Miquel, that microbes are abundant where human beings congregate, is explained by the fact that these microbes are derived from dried sputa, filth upon garments, and dejecta.—*L'Union Medicale*, December 10, 1887.

Iodine Trichloride.—LANGENBUCH has used this powder (ICl_3) as an antiseptic and disinfectant, in solution 1 to 1000 and 1500, which is equal to 4 per cent. of carbolic acid solution, and 1 to 1000 or 2000 corrosive sublimate. The substance is a reddish yellow powder, readily soluble in water.

RIEDEL and LANGENBUCH have used its solutions in more than 100 various operations, with good results. Ammonia water removes the yellowish stain it imparts to the integument. In solution, 1 to 1200 to 1 to 1500, a teaspoonful, taken every two hours, will rapidly relieve dyspepsia attended by the presence of bacteria. In solution, 1 to 1200, it is a good injection in gonorrhœa.—*Berliner klinische Wochenschrift*, No. 40, 1887.

The Action of some Substances upon the Secretion of Microbes.—At a recent meeting of the Society of Biology of France, CHARRIN and ROGER reported that certain substances, notably mercuric chloride, prevented the formation of the customary colored secretions of various microbes. A strength of seventy-five grains to the quart was sufficient to produce this effect, which was not chemical, but a modification in the functions of the microbes.—*Le Progrès Médicale*, November 12, 1887.

Antipyrin in Diabetes.—GÖNNER reports in the *Correspondenz-Blatt für Schweizer Aerzte*, No. 19, 1887, the case of a man, aged sixty, who had suffered from diabetes for six years; in whose urine as high as six per cent. of sugar had been found. After antifebrin to the extent of 135 grains had been given, Trommer's test failed to discover sugar. The drug was then continued for ten days, 45 grains daily, and a permanent improvement followed in ten days time.

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SATURDAY, JANUARY 7, 1888.

ADULTERATION OF FOOD AND DRUGS.

NEARLY a year ago there was a meeting in Washington of delegates from various societies, boards of trade, etc., in accordance with a request issued by the American Society for the Prevention of Adulteration of Food, etc., of Philadelphia. After the Convention had perfected its organization it proceeded to discuss the form of a bill to prevent the adulteration of food and drugs, which bill it would recommend to Congress for enactment. The form of bill which was finally agreed upon is substantially the same as that recommended several years ago by a committee of experts appointed by the National Board of Trade, of which committee, Dr. J. S. Billings was chairman. Its essential features are: *First.* Prohibition of adulterations which are dangerous to health. *Second.* Regulation of adulterations which are not dangerous to health, so that consumers may know what they are buying. *Third.* That its provisions shall correspond to those most approved in State Laws relating to this subject, and, especially, to the laws of Massachusetts, New York, and New Jersey; and, *fourth*, that the jurisdiction of the United States in this matter is to be confined to the District of Columbia, the territories, and the forts, navy yards, etc., under the exclusive jurisdiction of the Federal Government, and to inter-state and foreign commerce.

This last principle is one that must be carefully kept in mind, for the subject of adulteration of food and drugs is one that comes under the "police power" which, by the Constitution, is reserved to the several States. The individual States cannot, however, fully regulate this matter, for it is practically impossible for any State to prevent the importation of adulterated articles. This, however, is precisely what the United States can do, by virtue of its power to regulate commerce, and thus if the action of the several States and of the United States is harmonious, and based on the same principles, each can powerfully aid the other.

So far as food is concerned the evidence is quite sufficient, that while many articles are adulterated, few of the adulterations are dangerous to health. There are frauds which should be prevented in the interests of the public as well as in those of honest manufacturers, and the provisions of the bill as regards foods have been framed from this point of view. The case is different as regards drugs and medicines, for all adulterations of these must be regarded as dangerous to health or life. If the drug has not the powers and properties which it should have in the usual dose the physician will not obtain the effect which he desires, and which he has a right to expect. A remedy of uncertain strength, which must be experimented with to learn how much of it is required to produce sleep, or purgation, or action of the kidneys, or skin, is one which the physician would never use if he could help it; but, unfortunately, he often cannot help it.

No class of the community would more gladly welcome effective legislation preventive of adulteration of food and drugs than would medical men. We are, therefore, glad to see that the Committee on legislation, appointed at the meeting above referred to, has issued a call for the meeting of another convention at Washington, January 19, 1888. and it is proposed to urge strongly upon Congress the importance of speedy action.

One of the chief reasons why Congress failed to act when the matter was brought before it several years ago was, because of the action of certain bureaus and departments which wanted to control the matter. No doubt some of this feeling still exists, and this must be recognized as an obstacle to be overcome, but the feeling is, perhaps, now less intense than it was, at all events we hope so.

If we are to have any form of National Health organization this matter would properly come under its supervision, otherwise a special bureau for the purpose should be created. The United States is

now the only civilized country which does not regulate the subject of adulteration of food and drugs, by law, and it is certainly time that Congress and the States should take action in the direction urged by the conventions to which we have referred.

THE ETIOLOGY OF CANCER.

There have been of late several attempts made to isolate microörganisms in cancer and sarcoma, but without success. About two weeks ago, the news was cabled that a physician in Berlin had solved the problem, and in our exchanges of December 1st and 5th we have the full report of Scheurlen's observations, and the discussion thereon at the Verein für innere Medicin.

Cultures were made, with the usual precautions, from ten mammary cancers, the medium employed being ascitic or hydrocele fluid sterilized for five days. Usually on the third day a growth, in the form of a colorless film, was seen on the surface of the serum, which became in time of a yellow-brown color. The cultures contained a short bacillus, 1.5μ to 2.5μ in length, which stained readily with the ordinary reagents, and showed spores. They could not be detected in the sections when stained, but in the fresh cancer juice, to the practised eye, they were readily recognizable. Six bitches were inoculated by injecting material from the cultures directly into the hinder breast gland, with the result of the formation, in about fourteen days, of a circumscribed tumor the size of a walnut. Two of the dogs were killed, one on the 28th, the other on the 30th day after inoculation, and each showed a small, solid growth in the fatty tissue of the gland, composed of epithelioid cells, in which could be seen the glistening spores of the bacilli.

In the discussion which followed, Guttmann expressed himself as satisfied that this was really the cancer bacillus, while A. Fränkel thought it more probable that the form described was not related etiologically to the disease, but represented a secondary invasion of the growth from the outside. In the same number of the *Deutsche medicinische Wochenschrift*, No. 48, Schill, of Dresden, states that he has found in cancerous and sarcomatous tissues rod-shaped organisms which grow actively on gelatine and form a rich mycelium. The description does not tally with that given by Scheurlen. Some time ago Freire also announced the discovery of a bacillus in connection with malignant growths.

In this connection we may refer to the results of an investigation by Ballance and Shattock, published in the *British Medical Journal* of October 29th, to determine whether malignant new growths which have so many and close analogies to the infective granulomata have a micro-parasitic pathology. Cultures were made from twenty-two cancers, the greater number of which remained sterile, and when a growth did occur the organisms were the same as those described and figured by various observers as occurring in the healthy tissues. With this disagreement we shall require additional observations before a final settlement of the question is reached. So many fruitless attempts have been made to inoculate cancer that it seems very remarkable to hear of definite tumors produced by the injection of the cultures. The question hinges on the precise nature and structure of these artificial growths; if really identical with the original tumors and containing similar organisms, the relationship will be as clear as in the case of Koch's bacillus and tubercle; but we must have more definite evidence than has been presented by any of the above named workers.

THE NEW YORK QUARANTINE STATION.

The "Alesia" arrived at quarantine in New York harbor on the 23d of last September. The press spread the news throughout the country the next day, but, because of general confidence in the thoroughness and efficiency of the establishment and administration of the quarantine at that port, no great alarm was occasioned thereby. On the 26th and 27th of that month the stricken immigrants were visited at their place of detention by the recent United States Cholera Commissioner for the purpose of ascertaining the presence or absence of the cholera bacillus of Koch in their dejecta.

At a meeting of the College of Physicians of Philadelphia, Oct. 5th, Dr. Shakespeare was called upon for a verbal account of his visit to the New York Quarantine Station. After relating the object of his visit and the finding of the comma-bacillus in the stools of the cholera patients, the general state of affairs which casually met his eye was referred to. The reference was so disquieting that the College immediately appointed a committee "to consider the present danger of the importation of cholera into this country, and to secure concerted action among the medical societies of the land in urging upon the State and National authorities the adoption of a uniform and efficient system of quarantine for all exposed ports." This Committee visited the

quarantine establishment at New York, Oct. 8th, and, subsequently, that at Philadelphia and at Baltimore, and on Oct. 28th they presented a report (see THE MEDICAL NEWS, Extra Issue, Oct. 29, 1887). After the dangerous state of affairs they discovered became known, an independent investigation was conducted by Dr. John C. Peters, on behalf of the Medical Society of the County of New York, and on October 26th he made a preliminary report to that body.

Under date of December 31, 1887, the Mayor of New York addressed a letter to the Governor, in which he states that the report of the Philadelphia Committee "was so unfavorable that I deemed it to be my duty to ask the Board of Health of this city to prosecute this investigation, and to invite a Committee of the New York Academy of Medicine to make a thorough examination of the quarantine establishment." The committee last referred to consisted of Drs. C. R. Agnew, E. G. Janeway, Stephen Smith, A. Jacobi, T. Mitchell Prudden, Herman M. Biggs, and Richard H. Derby. They began the investigation on the 19th of December, and their report with accompanying documents was transmitted to Albany with the letter of the Mayor, who in his comments thereon, says: "It discloses a condition of affairs which calls for immediate action of the Legislature. It is evident that neither the city nor the State, nor any portion of the Union is free from the dangers of the spread of contagious diseases, unless the quarantine establishment at this port under the control of the State authorities is at once reformed and reconstructed. The danger of delay is too imminent to admit of any postponement whatever." Mayor Hewitt has requested the Governor to transmit this report to the Legislature, and recommend such action as will secure adequate provision against the dangers of contagious diseases which will be liable to break out as soon as the warm weather approaches.

The report of Dr. Peters, that of the New York State Board of Health to the Governor, and that of the Committee of the New York Academy of Medicine, entirely agree with that of the College of Physicians of Philadelphia. Assuredly, no further testimony should be required to convince even those who have been most inclined to trust to our antiquated and, for the most part, dilapidated quarantine defences, that the country is practically without defence against diseases imported by sea.

The Committee of the New York Academy of Medicine admit that "every citizen of the United States has a personal interest in the condition of New York quarantine." The same admission must be made by every well-informed and unprejudiced mind with regard to every port in this country through which immigrants enter, or wherein infected persons or things arrive.

Why, then, should the direction, expense, and responsibility of a system of common defence against the inroads of foreign diseases, any more than against the invasions of foreign foes, be assumed and borne by those municipalities or States which happen to have a maritime location? Why should the vast majority, who are situated inland, be allowed to shift their responsibilities and obligations, or be denied a voice in the direction of affairs which so greatly concern them? The protection of the public health by maritime quarantine is a matter which interests not merely a narrow belt of seacoast; it seriously concerns the whole of the vast territory between our shores.

Mayor Hewitt has indeed done well. He merits the recognition of all earnest sanitarians, and deserves the thanks and support of his fellow citizens. Until we obtain a thoroughly organized National quarantine, by all means perfect the local establishments which already exist.

But we have again and again pointed out wherein it is impossible even for the best quarantine under local support and control to protect the general welfare to the extent that we have a right to demand. And the reports we have referred to and the Address of the Committee of the College of Physicians strongly fortify our position.

Efforts at reform of local and independent quarantines cannot radically cure evils which are universal. The only remedy is National support and National control of quarantine.

A NEW OPERATION FOR CARCINOMA OF THE STOMACH.

DISSATISFACTION with the published results of gastroenterostomy and Loreta's operation for carcinoma of the stomach in which the disease has extended to the surrounding parts, and thereby excluded excision, has induced BERNAYS, of St. Louis, to resort to free scraping or curetting of the mass when it projects so much into the stomach as to give rise to symptoms of pyloric obstruction.

The operation, which is described in the *Annals of Surgery* for December, 1887, consists in performing gastrostomy, and afterward removing the

growth with the fingers, spoons, and other suitable instruments. The wall of the stomach having been carefully united to that of the belly, the viscus is opened by an incision an inch and a half long, the lips of which are then firmly attached to the lips of the skin incision by many points of silk suture. The stomach having been washed out with warm water, the mass is torn and scraped away, when a current of iced carbolized water is turned into the stomach, through which it is induced to contract and, thereby, arrest the bleeding.

In the first case in which this procedure was resorted to, there was complete relief from the distressing symptoms, and the man did well for three months and a half, when the operation was repeated, with the result of again inducing comfort. In the second case, the result was equally gratifying, and the woman had gained twelve pounds in three months.

As a means of prolonging life and affording relief from the terrible symptoms of obstruction, the operation of Bernays will, we think, commend itself to the practical surgeon. It occupies the same position in regard to carcinoma of the stomach as does free curetting to carcinoma of the uterus and rectum, in the latter of which more particularly it has rendered excellent service.

THE TREATMENT OF DIPHTHERIA BY PERCHLORIDE OF IRON AND MILK.

IN the *Gazette Hebdomadaire* of November 4, 1887, NEKKACH recommends this treatment quite strongly, and, although it is by no means entirely new, it is, perhaps, worthy of notice. By this method he obtained seventeen recoveries out of twenty-two cases of diphtheria involving the larynx and pharynx.

The treatment consists in the administration of from twenty to thirty drops of the liquid perchloride of iron in a glass of pure cold water; or, better still, the patient is to take a large wooden spoonful of this water and iron mixture every few minutes, day and night. Immediately after the ingestion of the drug, the child is to take a large spoonful of cold milk, not boiled or sweetened. Cataplasms of flaxseed meal are also applied to the neck. In some instances the drug is applied directly to the part affected.

The objects attained are stated to be the prevention of further exudate, the production of a desirable astringent contraction of the tissues, and a tonic influence on the entire body.

Nekkach believes that by this means a certain curative effect is produced, that asphyxia is prevented, and that the epidemic tendency is actually decreased. The latter is, of course, exceedingly unlikely, except by a very indirect action.

THE HENDON COW DISEASE AND SCARLET FEVER.

VERY great interest was excited in England last year by an outbreak of scarlet fever in Marleybone, which, it was thought by DR. KLEIN and others, could be directly traced to a disease in the cows of a certain dairy at Hendon. Investigation showed that there was a specific, contagious, and infectious disease which could be communicated to healthy cows, and also by inoculation to man. It was believed to be distinct from cowpox, and Dr. Klein's experiments led him to conclude that it closely resembled scarlatina, and that there was a real danger of infection when the milk of diseased animals was used as food. We have already referred to this at length in THE NEWS of July 9, 1887.

Serious doubts existed in the minds of many as to the correctness of Dr. Klein's conclusions, and the Agricultural Department of the Privy Council commissioned Professor Crookshank to investigate the subject, and his report was read at a special meeting of the Pathological Society of London, and appears in the *British Medical Journal* of December 17th. He has studied two outbreaks identical in character with the Hendon disease, and has repeated Dr. Klein's experiments, but has reached the important conclusion that the affection is cowpox, and has nothing whatever to do with the propagation of scarlet fever. Very fortunately he was able to obtain a case of recent inoculation in one of the cow men, which proved to be a typical pox, and the lymph taken from it produced in calves characteristic vaccinia. There were no cases of scarlet fever on the farms or in the district to which the milk of the infected herd was distributed.

Whether or not the micrococcus which was described by Klein, and also found by Crookshank, represents the specific organism of vaccinia must be determined by subsequent investigations; and meanwhile the Agricultural Department of the Privy Council and Dr. Crookshank are to be congratulated on making out what was apparently a most obscure bovine disease.

IN New York City, on December 29, the Sloane Maternity and Vanderbilt Clinic were dedicated, and

made serviceable to the cause of medical teaching, at the College of Physicians and Surgeons. The medical address by Dr. T. Gaillard Thomas was an eloquent oration. Prof. Dalton and the Rev. Dr. John Hall also participated in the ceremony. An endowment has been promised whereby the beds will be free perpetually at the Maternity. Dr. James W. Markoe has been appointed house physician.

THE New York County Medical Society having been importuned to make an example of one of the "faith-healers," the counsel of the Society, Mr. Purrington, explains that the existing statutes do not aim at the punishment of this kind of imposture, when there is not a positive employment of medicine, or operation of surgery. The faithists have been brought into prominence lately by having a patient commit suicide at one of their "homes," and by the loss by death of a wealthy patient, whose case got into the "papers," whom friends believed might have been cured by prompt medical attendance.

DR. GEORGE D. HERSEY, of Providence, has been appointed visiting surgeon to the Rhode Island Hospital in place of Dr. Edward T. Caswell, deceased.

SOCIETY PROCEEDINGS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, December 14, 1887.

THE PRESIDENT, J. SOLIS-COHEN, M.D., IN THE CHAIR.

DR. J. H. MUSSER, M.D., read a paper on

THE MORBID ANATOMY OF PERI-CÆCAL INFLAMMATION.

Much confusion, he said, appears to exist in regard to the nomenclature of the inflammatory affections of the region we are about to consider. It may, therefore, be well to define the various terms. By typhlitis we understand inflammation of the cæcum; by peri-typhlitis, inflammation of the peritoneum covering the cæcum; by para-typhlitis, inflammation of the connective tissue behind the cæcum. The term typhlitis is often used to include inflammation both of the cæcum and of the appendix. The term appendicitis is used for inflammation of the appendix, appendicular peritonitis for typhlitis of the appendix and its serous covering, and para-typhlitis for inflammation of the connective tissue around the appendix, or peri-cæcal inflammation.

Typhlitis has been considered by systematic writers to be a frequent affection, and yet it is difficult for pathologists to find records of post-mortems in which this condition has been found. It is true that some writers, especially the Germans, have described cases, particularly of stercoral typhlitis, in which inflammation and ulceration of the mucous membrane of the cæcum, by pressure from fecal impaction, was present. Most of us will, however, agree with Fagge that typhlitis is a good general expression used for all varieties of inflammation occurring in the right iliac fossa, but that in the majority of cases the correct term should be appendicitis. Wilkes and Fagge consider that the difference in degree of the inflammation alone accounts for the difference in the symptoms, and that the largest number of cases are due primarily to inflammation of the appendix. Perforation of the cæcum is most rare, and Fitz, in a most extensive research, was able to find but three cases, and in these instances, due to foreign bodies.

Inflammation of the appendix occurs both of the simple catarrhal and of the ulcerative type. Catarrhal inflammation with succeeding ulceration, local peritonitis, and, finally, perforation, also occurs; and the following conditions are generally found after death. In the first place, on section of the abdominal walls there is found, especially in the right iliac region, an œdematous state of the tissues; not only may there be serous œdema, but there may also be infiltration of pus, due to the burrowing from the primary abscess. The peritoneum, if involved, will exhibit an intense degree of inflammation with the characteristic injection, sometimes general, sometimes limited, and more particularly to the right iliac fossa and the pelvis. Serum will be found in the peritoneal cavity, and in some instances pus; blood is occasionally found. In the more severe forms, especially, large flakes of lymph cover the intestines, the parietal peritoneum, and the abdominal organs. The intestines are also more or less adherent to each other, depending upon the duration and the degree of the inflammation. The location of the abscess, for it is usually circumscribed, depends upon the position of the cæcum. There are three positions in which it is most frequently found—either in the right iliac fossa just above Poupart's ligament, or behind the cæcum, or in the pelvis. The size of the abscess varies, sometimes containing only two or three ounces of pus, and in other instances as much as a pint or more has been removed. The walls of the abscess differ according to its position. The appendix is always found in the abscess, and has undergone changes varying in degree with the duration and severity of the inflammation. Inflammation and ulceration of the mucous membrane, serous or purulent infiltration of the walls, with perforative ulceration and encysted or localized peritonitis, are discovered. In some instances a portion has sloughed entirely off and cannot be found, having undergone dissolution; in others it is found as a soft mass of necrosed tissue. The perforation varies in size; sometimes it completely surrounds the appendix, or even severs it in two, or it is sufficiently large to admit a probe only, while even in other instances it can scarcely be detected. Sometimes two or more perforations are found, and frequently they are covered by recent lymph. The canal of the appendix is very often dilated. We usually find in the canal, near the cæcum, a foreign body; it may, however, be found in the abscess. There is one point of importance in reference to the surgery of this region, and that is, that the perforation usually occurs within one and one-half or two inches of the colon. Whatever may be the length of the appendix, the perforation is, as a rule, found at the point just indicated.

There are, of course, many cases which do not terminate

fatally. Under such circumstances resolution takes place, or the abscess becomes encysted or ruptures into some neighboring organ. The abscess may discharge through the abdominal wall, through the scrotum, into the hip-joint, through the loin or the perineum, or in other directions. Sometimes the pus burrows upward, even as high as and into the pleural cavity. The bladder is a favorite seat for the rupture of such abscesses.

That cure may take place in cases of perforation of the vermiform appendix, was distinctly shown by a specimen in the museum of the Pennsylvania Hospital. And while it may appear to be a refinement of terms to differentiate between typhlitis and appendicitis, it is almost necessary in order that a correct and well-defined appreciation of the pathology be determined, so that early and proper treatment may be instituted. Unless such a refinement be made, cases of this kind will be frequently treated as simple typhlitis, whereas in ninety per cent., or perhaps a larger proportion, they are cases of inflammation of the appendix.

Dr. William Pepper made the following remarks on the

DIAGNOSIS OF PERI-CÆCAL INFLAMMATION.

The appendix presents evidences of disease in a very large number of indifferent autopsies. He remembered the report of a series of three hundred autopsies, in which there were signs of disease of the appendix in thirty-three per cent., although in none of these was there a history of typhlitis. We have this little organ, singularly useless physiologically so far as we know, placed in a singularly unfavorable position anatomically, very liable to become impacted, so formed that escape of its contents is very difficult, and very prone to become diseased. We must recognize the fact that the appendix is often diseased when we have no reason to suspect such a condition. He cannot agree, however, that the cæcum also is not often the seat of disease. He had collected a number of instances of independent cæcal disease, where the cæcum alone presented lesions, sometimes going on to chronic inflammation, ulceration, and perforation. The real condition of things seems to be this. In the first place, there are many cases of mild appendicitis which cannot be recognized during life; in the second place, there are a considerable number of cases of typhlitis where the symptoms are chiefly due to inflammation of the walls of the cæcum and of the peri-cæcal connective tissue, which end in recovery. It is impossible in these cases to determine what proportion has been due to appendicitis. Finally, there are also a good many cases of severe appendicitis resulting in ulceration and perforation, with the formation of circumscribed abscess or of general peritonitis. If we could accept the view that perforation of the appendix, leading to peri-typhlitis or para-typhlitis often resulted in recovery by resolution, it would be a matter of comparative indifference where the lesion was chiefly situated; but do clinical experience and anatomical records justify the view, that perforation of the appendix, followed by peri- and para-typhlitis, often ends in resolution? It is true that he had found one specimen and that others have been placed on record where perforation of the appendix has not been followed by grave results, but do these amount to anything comparable with the great mass of cases where lesions of the appendix have occurred with peritonitis and fatal result unless relieved by operation. We have to recognize that while in typhlitis, peri-typhlitis, and para-typhlitis, in all probability appendicitis always exists, yet it is often present in only a very mild degree, and can cause only a small portion of the symptoms. This conception seems necessary to a correct diagnosis of these lesions; and it is necessary in guiding our treatment.

There appear, then, to be two classes of cases. In one the affection is more limited to the walls of the cæcum and the peri-cæcal connective tissue, and the appendix is affected to a comparatively slight degree. We have no record as to the frequency of such cases. The record is not to be sought on the post-mortem table, for the large proportion of these cases, if properly treated from the beginning, end in resolution. He has the records of scores of such cases, the vast majority of which ended in resolution. These cases are marked by pain as the initial symptom, not excruciating in character, not associated with evidences of collapse, often accompanied by nausea and vomiting, and with elevation of temperature, which continues to rise until decided fever is present. With these symptoms there is excruciating tenderness in the right iliac fossa, a sense of fulness and induration, not rarely with dorsal decubitus and flexed thigh, with a constipated condition of the bowels, possibly preceded by one or two irritative movements during the first day, and with these there is considerable acceleration of the pulse. In proportion as the induration and swelling are early and marked, the chances are that the appendix is not seriously involved, but that the affection is chiefly one of inflammation of the walls of the cæcum and of the peri-cæcal connective tissue with exudation, and usually accompanied with considerable fecal impaction of the cæcum.

If absolute rest be insisted upon, if abstinence from food and absolute avoidance of interference with the state of the bowels be adhered to, if local depletion be employed, if counter-irritation followed by the application of the ice-bag, or warm fomentations be employed, and if the internal use of opium and mercury be begun early, the vast majority of such cases terminate in resolution and complete recovery, if the convalescent is properly treated—that is, if these restrictions be insisted upon until the sensibility of the part is entirely removed. The well-known tendency to the recurrence of typhlitis is largely dependent upon the management of the convalescence from the primary attack.

On the other hand, we know very well that such cases not rarely go on without resolving, that the induration extends, that the symptoms become aggravated and possibly are such as to indicate suppuration, and that at periods varying from seven to fifteen days pus formation occurs. Such cases demand operative interference, and are successfully treated by the Parker operation. The existence of pus can often be demonstrated by exploratory puncture with a fine aspirator needle.

There is a second class of cases of an entirely opposite character, with which we are all equally familiar. Here the patient may apparently have been in almost perfect health, for perforation of the appendix may occur without any previous symptoms of which the patient had complained. But in these cases there has been a catarrhal appendicitis; the fecal matter which is present in nearly every healthy appendix, is no longer able to circulate and escape, because the outlet is partially closed by the swelling of the mucous membrane; the pent-up secre-

tions and the irritating fecal matter excite more serious inflammation in the walls of the appendix; ulceration is established, and, finally, perforation occurs, and the symptoms of the attack begin. He has rarely seen a fatal case of disease of the appendix where there was not stenosis of its orifice, and he thinks that, to a large extent, it is this tendency to closure, and the accumulation of the secretions and of fecal matter, that causes the most serious type of inflammation and the occurrence of perforative appendicitis.

The first symptom in these cases is usually intense and excruciating pain, so severe at times as to cause collapse, occasionally so severe as to be followed by death in a few hours. Following this there is the rapid development of the signs of peritonitis. The pulse becomes frequent. There is marked tenderness, not in the iliac region only, but also toward the middle of the abdomen. The belly becomes distended, but there is no induration to be felt; there may even be no fulness in the right ileo-cæcal region. The appendix often lies under the cæcum, and he has frequently percussed these cases with great care without finding any evidence of dulness or of induration. After the occurrence of the initial pain, the fever may not rise very rapidly. There may be only moderate febrile reaction for one, two, or three days, associated with continued, moderate pain simulating an ordinary catarrhal attack with intestinal colic. For two or three days these cases may be viewed as not being seriously ill, so delusive may be the symptoms after the subsidence of the initial pain. In these cases there is absence of ileo-cæcal infiltration, or induration, or tumor, or prominence, or dulness on percussion. There is in these cases a less degree of vomiting than in the first class of cases mentioned. The vomiting is often rare, and only induced when the stomach is taxed. The bowels are quiet, but not so obstinately constipated and not so strongly resistant to the action of laxatives as in typhlitis, with more or less impaction of the cæcum. After a time, which varies with the intensity of the attack and the direction which the exuded matter has taken, there appear the symptoms of a rapidly spreading, general peritonitis. The belly becomes greatly distended and tender, the coils of intestine are outlined through the tightly stretched skin. The vomiting becomes frequent, the temperature rises, the pulse grows thready and rapid, and we have the familiar signs of general peritonitis. These cases end fatally, from exhaustion, in from five to ten days.

Here are two groups of cases which seem to differ not only in degree, but also to differ in the seat of their lesion and the character of that lesion. He cannot believe that in any great number of cases of the first group there is perforation of the appendix. Yet, unless perforation is present, we have seen that all the other lesions of the appendix may exist without the production of any symptoms. Therefore, he cannot attribute to ordinary appendicitis the symptoms of peri-cæcal inflammation which mark the first group of cases. These symptoms we must assign to the inflammation of the walls of the cæcum and of the peri-cæcal connective tissue in chief part.

It is, therefore, of momentous importance that we should be able to diagnose the sort of case that we have to deal with, and at the earliest moment. He should say, that in proportion as the tumor, prominence, induration, and dulness are marked, delay is safe, especially if rectal examination does not indicate any fulness on the right side of the roof of the pelvis. If this is present, it indicates an amount of exudation which will end in abscess, and is a strong indication for operation. If digital examination, pushed if necessary to the extent of the introduction of the whole hand, reveals no fulness in the roof of the pelvis, delay for several days is justifiable, and with such treatment as indicated, the symptoms will, in the majority of cases, subside; and, although the case is fraught with great anxiety, resolution will begin, the symptoms will become milder, and the patient recover, and under proper treatment the part will be restored to absolute health without relapse. Even if frequent relapses occur—and he had seen as many as fifteen or eighteen in the same individual—complete recovery may follow a protracted course of treatment with absolute rest, rigidly restricted diet, constant counter-irritation, and suitable alterative treatment internally.

Of course if, after waiting a few days, there is no evidence of the commencement of resolution; if the fever is sustained, particularly if it assume a hectic type, we know from experience that suppuration will not be long postponed. Exploratory puncture should be made, and operation should follow without delay.

The most important question to be considered is, What is the earliest moment at which we can establish the diagnosis? The initial symptoms give us some indication of the seat and the gravity of the attack. Typhlitis and peri-typhlitis soon offer demonstrable symptoms, but as the appendix is hidden under the intestine, the symptoms of perforated appendicitis are often obscure for two or three days. The most careful palpation may fail to show the slightest fulness. The patient may complain of pain over the cæcum, or over the hypogastrium. External examination does not aid us in the diagnosis. Are there any special features which will help us? He would again refer to the importance of the rectal examination. Early and oft-repeated rectal examination is the most important diagnostic means we possess in this class of affections. Often, on opening the body after death, there is no appearance of peritonitis in the exposed coils of intestine. There is no inflammatory process seen outside of the cæcum, and nothing is found until the cæcum is lifted up, when it is discovered that the inflammation is behind it, and extends downward to the pelvis. Sometimes, on removing a layer of lymph, a pelvis filled with pus is disclosed. In such cases, if rectal examination should give a sense of distention of the right side of the pelvic roof, might not a puncture be made with a curved exploring needle introduced through the rectum? In this way we might demonstrate the presence of pus, when it would not be possible to do so through the external abdominal wall.

In many of these cases there has seemed to be an unusual abundance of urine and an increased frequency of urination. He thinks that the former is associated with the absence of vomiting. In typhlitis and peri-typhlitis, there is often so much vomiting that very little liquid is absorbed, and the urine becomes concentrated. He had seen cases of perforation of the appendix, where the urine was voided at intervals of an hour or an hour and a half, the total amounting to a large quantity.

Again, it has seemed to him that in perforation the pain is more apt to extend to the middle line of the abdomen, and sometimes into the genitals, especially into the right testicle and spermatic cord.

The agony of pain which marks the initial lesion, the development of fever, the acceleration of the pulse, the distention of the abdomen, the pain referred to some point in the ileo-cæcal region, the comparative rarity of vomiting, the absence of induration and tumor, possibly, the ability to detect fulness or induration in the roof of the pelvis by rectal examination, the frequent micturition with a free supply of urine, the pain possibly radiating in the direction of the genitals, have been, in the majority of cases, the most marked symptoms.

Suppuration occurs in these cases very early, even earlier than in the other group of cases. In one case in which Dr. Keen operated for him as early as the close of the third day, perhaps the earliest operation on record, a pint of pus was found in the pelvis.

The point to which we should bend our exertions should be to determine the early diagnostic symptoms of these two varieties of cæcal inflammation, to see whether there is a constancy in the description that he has given of the first type of inflammation of the walls of the cæcum which, under proper treatment, offers a considerable hope of recovery. We should, in particular, strive to point out the indications for operation in the two classes of cases.

He would ask if general peritonitis may not be a positive indication for instant operation. It has been asserted that general peritonitis is not a contra-indication to laparotomy under other circumstances. If this is the case, the development of general peritonitis in a case of inflammation of the cæcal region would at once indicate operation, for after this develops death results under medical treatment.

Dr. Thomas G. Morton made the following remarks on

THE TREATMENT OF PERI-CÆCAL INFLAMMATION.

For practical purposes the treatment must be divided into two subdivisions, that of the pre-purulent, and that of the post-purulent stage.

The treatment of the pre-purulent, irritative, or simple inflammatory disorders of the cæcum and its surroundings, or appendix, should consist of rest in bed, restriction of diet to nourishing liquids, hot poultices or fomentations frequently replaced upon the parts, perhaps local depletion, and possibly the hypodermatic exhibition of morphia to control pain; whilst the bowels should be kept open and free from accumulations of gas and feces by the administration of salines and enemas—perhaps with the addition of turpentine to the latter.

Those disposed to cavil at the advice just given, he would ask: Shall we keep the bowels in liquid condition, and so best prepared to resist peritonitis, should it occur, whilst at the same time the mere draining of fluid from the intestines and surrounding parts would influence for the better the peri-cæcal inflammation? or shall we paralyze and congest, and inflate the bowels by the old-fashioned "splinting" treatment, and thus beckon on peritonitis?

Pain of intense character would often be as much an indication for operative relief as for morphia.

Prompt resolution should take place in cases which are not to go on to the stage of pus formation; and very long continuation of symptoms, or relapses, or recurrences, would be strong indications for surgical interference.

The presence of such tedious recovery, relapse, or recurrence would point to the probable presence of conditions exceedingly dangerous to the patient from liability to general peritonitis or perforation at any time; they further would point, as a rule, to the appendix as the source of irritation and danger. Indeed, in man, that worse than useless appendage must be regarded as the root of most evil in the region under consideration.

To illustrate this point by a single impressive instance, he quoted the case of a woman who, for a long time, had been having mild attacks of abdominal pain, located in the region of the cæcum, which had usually yielded with great promptitude to anodynes. During the course of the last attack of that nature, violent symptoms of perforation and general peritonitis came on. He did not see her until two days after this unfortunate accident; but, though she was then in a most desperate condition, he advised operation as her only chance, and forthwith performed abdominal section. The appendix was found perforated in two places, and violent general purulent peritonitis going on. She died a few hours afterward, but he felt better satisfied that the operation had been performed.

He then considered the treatment of the post-purulent stage.

In the great majority of instances, the presence of even a minute amount of pus so near to the peritoneum would be of vastly more risk to the patient than that of abdominal section for its relief. Hence, he would operate whenever the diagnosis of pus had been made—occasionally even without positive diagnosis.

Many other risks are to be taken rather than those of purulent peritonitis, for early interference will save most if not nearly all cases from this latter dread complication, while the danger of operation becomes slight compared to that of rampant abdominal inflammation.

Local or general peritonitis supervening in a person who has a history of cæcal trouble, or starting during a first attack, would more than justify operation.

At a later or even perhaps chronic stage of the disorder, all available diagnostic skill must be exerted when a peri-cæcal abscess may have pointed in an anomalous situation, and we must ever adhere to the modern surgical rule, always to attack pus at its source if possible. When the cæcum is normally placed, this is always feasible, if the disease be recognized.

Coming now to speak of actual operative measures, the patient, as a matter of course, must be got into the best possible condition, and surgically clean by the usual methods of attempting these ends. Asepsis should rigidly prevail throughout.

The aspirating needle must never be used, for if it does not find pus we cannot be sure that none is present, whilst its own dangers are not inconsiderable. In these cases it is a poor and especially unsafe diagnostic resource.

The abdominal incision should be lateral, *not* median. For if median the peritoneal cavity would often be needlessly opened, and the cæcum and appendix cannot well be reached or dealt with through it. But if lateral it can be made of less size, circumscribed abscesses will frequently be found before the peritoneum is reached, and at its base all necessary manipulations can be made upon the cæcum, appendix, and surrounding parts without opening the peritoneal cavity, whilst should the abscess or ulcer have reached that cavity the intestines, etc., can just as well be examined and cleansed through a lateral as a median incision.

The favored or lateral incision should begin at a point an inch above Poupart's ligament and to the outer side of the right linea semilunaris, be continued in a vertical direction upward about four inches, and carried down through the parietal muscles until pus, cæcum, or peritoneum encircling that organ be reached. Then the wound can be enlarged if necessary. If pus be found, wash its containing cavity clean, and get a clear view and careful examination of the cæcum and appendix. The latter is almost always the seat of trouble, and, perhaps, it would be well always to excise it whilst we have the chance, for any cæcal trouble will be likely in time to excite disorder of its appendage. Without a doubt it should be so treated if found inflamed, perforated, or harboring a foreign body. This can best be accomplished by ligating it as close as possible to its cæcal attachment and cutting it off. Cæcal perforations, if found, should be closed by Lembert sutures, whilst ulcers, which may be present but have not perforated, should by the same means be turned into the bowel lumen. If the general peritoneal cavity has not been involved, the abscess or cæcum or what not in view, should be gently curetted, washed out with a one to one thousand bichloride of mercury solution, a large glass or rubber drain introduced, and the abdominal wound closed around it with silk sutures, and a dressing superimposed.

If the peritoneum has become involved, and but a short time before the operation, the whole abdominal cavity must be most thoroughly washed out with hot (105° to 110°) distilled water, or one to ten thousand bichloride of mercury solution, and cleansed with sponges, and the foreign body, if that has been the source of trouble, searched for. Should peritonitis be found further advanced the intestines must be withdrawn, and all adhesions parted with the finger or knife during the process of cleansing and before they are returned to the peritoneal cavity. In the case of general peritonitis a glass drain must be carried to the bottom of the pelvis and kept in working order by means of absorbent cotton ropes acting by capillarity. If a second tube is not used for the superficial or peri-cæcal abscess cavity the drain going to the pelvis must have perforations as high in it as the level of the cæcum and any surrounding trouble.

If the inflammation should be caused by the presence of a foreign body in the cæcum itself or by impaction of feces, they must be either excised or urged by prudent force along the bowel. In their operative removal a simple incision, afterward united by Lembert sutures, would answer every purpose.

If portions of the cæcum have sloughed or become gangrenous and the breaches of continuity are too large to approximate with Lembert sutures without producing dangerous constriction of the gut, we will have to content ourselves with the formation of an artificial anus.

Post-operative treatment would consist in keeping the bowels in a fairly soluble condition, the tube clean, and in meeting threatening peritonitis by active purgation.

DR. W. W. KEEN said a word or two with reference to the diagnosis. He had seen many of these cases, and he has yet to see one in which a distinct tumor was present. As a rule, tumefaction will be found, but no tumor. Nor is any fluctuation found in these cases. In a case which he saw in consultation eight years ago, there had been extensive infiltration in the right iliac fossa, for three weeks; but there was absolutely no tumor and no fluctuation; yet, when the cavity was opened, a pint of pus was found. We should make up our minds positively, in reference to the surgical treatment of these cases, that we are not to wait for the formation of a distinct tumor or the presence of distinct fluctuation.

Another symptom, to which Dr. Pepper alluded, he has not found a constant one—and it is surprising that it is not—that is, the flexing of the right thigh. Not only may this be so, but all the other symptoms may be fading, and yet pus be present. In the *Medical and Surgical Reporter* for the early part of 1886, he reported a case in which he operated on the sixth day. The symptoms had followed the ingestion of a large quantity of grapes, the temperature reaching 102.8°. The fever and pain had nearly disappeared, and the other symptoms had ameliorated to such an extent that convalescence seemed almost established. Here the diagnosis and treatment hinged upon one measure, which he was rather surprised to hear Dr. Morton condemn—that is, the use of the aspirator. In these, and certain other cases, the use of the hypodermatic syringe for exploratory purposes is strongly to be commended. If it penetrates any normal structure, it will do no harm; and if it reaches pus, it gives a positive indication for operation.

The time at which pus forms is often extremely early. He had had two cases in which on the sixth day a large quantity of pus was found. Both of these cases made excellent recoveries. In the case seen with Dr. Pepper, pus was found as early as the close of the third day.

He was glad to hear Dr. Pepper refer so strongly to the importance of the rectal examination in these cases. The appendix often lies directly on the brim of the pelvis; if the perforation be near the cæcum, the pus will find its easiest outlet, in not a few cases, toward the cavity of the pelvis. It is, therefore, in the majority of cases, within easy reach of the finger; and, in an urgent case, if it cannot be reached by the finger, the introduction of the hand, provided it be a reasonably small one, may be practised.

Both Dr. Pepper and Dr. Morton have alluded to operation in these cases. As is well known the operation of Dr. Willard Parker consists of an incision not vertical, but parallel, to Poupart's ligament. This incision will do very well in the majority of cases, when the lesion is situated in the right iliac fossa proper. Either this or the vertical incision to which Dr. Morton alluded, may be selected. As we go further and do not find pus, the hypodermatic syringe may be used for purposes of further exploration. In the second class of cases alluded to by Dr. Pepper, where there is perforation of the appendix, where there is absence of induration in the right iliac fossa, and especially if there is general peritonitis, he should certainly favor median and not lateral laparotomy. The latter does not give so simple and bloodless an operation; nor does it give us so easy access to the cavity of the pelvis for exploration, for drainage, and for the surgical manipulations that may be necessary. In the case he operated on one year ago, for Dr. Pepper, he regretted that he did not do a median operation at once, instead of doing the lateral operation. The median operation gives every facility for operation on the viscera in the right iliac fossa, and especially it gives access to the appendix. Unless the indications for lateral operation be strong, he should favor the median incision.

He should hesitate to perform puncture of the rectum.

It would be far better to do a laparotomy, rather than in the dark, not knowing what the lesion was, simply to drain the cavity of the pelvis, as we would do by rectal puncture. We want to know what condition exists; we want to find out the exact facts. Exploratory operation is not only constantly done, but done, he might almost say, without any additional risk to the patient, and it gives us the means of dealing with whatever lesion we may find. If the appendix is perforated, we should ligate it and remove the diseased portion. If the cæcum should prove to be the seat of perforation, we should close the opening with the Lembert suture. If the perforation is too large for this, it will be necessary to follow the plan suggested by Dr. Morton, and make an artificial anus.

Dr. W. Hunt said that the suggestion has been made that treatment with salines should take the place of the opium treatment in these cases, especially after operation. This is a point on which more experience is needed before we can reach a decision. When we take into consideration the fact that several cases of perforation of the appendix have been known to get well under the opium treatment, as proved by post-mortems long after, and also the fact that the mortality after the adoption of that treatment years ago, fell, to a large extent, we should not hastily abandon it.

With reference to the operation of ligating and cutting off the appendix, it seemed to him that by this method it might possibly be found that only mucous surfaces had been brought into contact and adhesion not secured. It would be better after removing the diseased portion to close the stump by the Lembert suture.

Dr. Wm. Osler said that the important point in connection with perforative appendicitis is, that in the majority of cases the perforation occurs first with slight inflammation in the neighborhood, perhaps lasting a few weeks or months, without exciting any special symptoms; and the first symptoms to which the attention of the physician is called, and which are rapidly followed by peritonitis, are those of perforation not of the appendix, but of the appendiceal abscess. In five instances of peri-cæcal abscess which he had examined, in every one of them there was evidence that the abscess had lasted some time. That this is the case is evident from the fact that there are many instances—of which he had had three—in which there was no perforation into the peritoneum, and no peritonitis occurred, yet there were signs of septic fever. The perforation had led not to general peritonitis, but to inflammation of the portal branches and diffuse abscess of the liver. This is a point which has not been sufficiently recognized in dealing with these cases of perforation of the appendix.

With regard to cæcal disease, we have all seen the cases which have been described by Dr. Pepper. They result, in the majority of instances, from impaction; and the induration which we feel is in most cases fecal. It is important to distinguish between these cases and appendicitis, for the majority recover. We, however, learn from post-mortem examinations that a considerable number of cases of perforation of the appendix also get well—cases, too, in which there have been no special symptoms.

He had had three cases of peri-cæcal abscess from disease of the cæcum. Two were cases of round ulcer of the cæcum. In both the cæcum was the only part involved, the ulcer not being larger than a quarter of a dollar. In both instances the perforation was posterior and had excited suppuration in the tissues as high as the kidney. In one instance the abscess had been opened in the loin and had discharged very freely. In the third case the perforation was due to cancerous ulceration. There was in this case a large perforation just beyond the orifice of the ileum.

Dr. J. C. Wilson desired to call attention to a group of cases in which there is more or less extensive and general peritonitis, and this peritonitis may be due, as Dr. Osler has pointed out, either to rupture of a peri-cæcal abscess or to primary rupture of the appendix, with the escape of its contents into the peritoneal cavity. He believes that in this form we have to deal with two essentially different processes. In the first place, we have those cases in which we have rapidly developing peritonitis as the result of the escape of the contents of the appendix, or of a peri-cæcal abscess, and these cases demand the surgical interference which has been indicated. He believes that there is another class of these cases in which the peritoneal process results, not in purulent exudation finding its way down into the pelvis, but in plastic exudation from the beginning. Here we have the typical symptoms of general peritonitis without the formation of pus. These cases, he believes, not only terminate in recovery, but do better without than with surgical interference.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, December 23, 1887.

The President, James Perrigo, M.D., in the Chair.

Dr. G. Wesley Mills read a paper on

PHYSIOLOGICAL AND PATHOLOGICAL REVERSION.

He said the terms physiological and pathological reversion had not been used by Darwin or other writers on evolution. Physiological reversion is a return to a condition functionally similar, if not identical with, that existing in some lower form; pathological reversion is a like result from disease. The *embryo* is physiologically as well as morphologically allied to aquatic animals and lower forms generally. In *old age* there are many reversions to conditions existing in the infant or lower groups of animals.

In slow natural death there is a series of reversions to conditions present in lower groups, the individuals sinking lower and lower in the scale of life. The mammals become more and more cold-blooded animals. In hypnotism, somnambulism, hibernation, and natural sleep there is most pronounced physiological reversion. In certain cases of disease (hysteria, etc.) the *respiratory* function of the alimentary canal, retained to a certain degree, is exaggerated, so that there is a reversion to a condition in lower forms, as the fish and turtle (pharyngeal respiration).

In the *renal* system, when the urine secreted is of a high specific gravity, as in fever, and in instances in which there is excess of uric acid, there is reversion in the one case to a condition found in lower animals, in the other to lower groups of vertebrates, as birds and serpents.

There may be in man a reversion in the *digestive* system to a condition allied to the regurgitation of food in birds or the ruminants.

In anæmia, leukæmia, chlorosis with defective development of the vascular mechanism, and cyanosis, there is pronounced reversion, either to the functional condition of lower vertebrates, or of invertebrates.

The same applies to those forms of cardiac disease involving regurgitations and imperfectly aërated blood.

In diseases of the *nervous* system reversion is especially well seen. An animal poisoned by curare is reduced to the condition of a cold-blooded animal, so far as heat production is concerned. Animals, from which considerable portions of the cerebral lobes have been removed, are more machine-like, and thus resemble creatures much lower in the scale, as is proved by Goltz's experiments. In lesions of the cerebrum the more voluntary muscles lose power first, and the more extensive the lesion the lower in the scale the animal sinks; man leads a mere vegetative existence.

In all the above cases, and many more reversions which can be produced experimentally on animals, the question always arises, Why is the change of the peculiar nature it proves to be?

Unless we take into account the derivation of mammals, including man, from lower forms—a derivation which is physiological as well as morphological—it does not seem possible to interpret the true significance of the facts.

DR. SHEPHERD said that for many years he had been interested in the subject of evolution, but the point of view from which he had studied it had been entirely morphological. He believed that the physiological aspect of the subject had not been much regarded, and that, therefore, he considered the points brought out by the reader of the paper to be, to a great extent, new; they were at least new to him, and he thought that Dr. Mills had opened up a wide field for investigation. He himself was a thorough believer in evolution, for how otherwise could he explain the existence in man of rudimentary organs, anomalous and useless muscles, etc., which have their perfectly developed condition in animals lower in the scale, and in them fulfil a definite purpose.

He was aware that in the development of the embryo we saw the compressed history of the development of the race, but the statement made by the reader of the paper that in the death of the individual this history was read backward, was new to him.

DR. STEWART had listened with much interest to the paper, which in many of its features was entirely new. The reader had not, however, drawn attention to the fact that in persons dying of old age the death was through the bloodvessels; some one had said that death from old age was the evolution of dissolution.

DR. RUTTAN then read a paper entitled

SOME LABORATORY NOTES ON PAPOID DIGESTION.

It embodied the results of some experiments recently made by him on this interesting ferment. After giving a résumé of the work done by others, and calling attention to the contradictory nature of many of the published results, he first showed that papoid contained a proteolytic ferment, which was most active in neutral or faintly alkaline solution, its maximum activity being seen in an alkaline solution of a two per cent. sodium carbonate. A higher percentage of alkali retarded its action, while in an acid solution of three per cent. hydrochloric acid it seemed wholly devoid of peptonizing properties. He did not believe that papoid would do true digestive work in an acid medium. Comparing its proteolytic action with that of pepsin and pancreatin, he found that it was a more rapid proteolytic agent in neutral solutions than either.

In a series of experiments in which these three ferments were placed, each in conditions most favorable to its functional activity, he found that papoid was but little inferior to either in peptonizing power. He tried a number of experiments on diphtheritic membrane, and found that in a neutral solution, a five per cent. solution of papoid digested 8 grains of diphtheritic membrane in twenty-six hours, and 5 grains in twenty-four hours; in a parallel experiment in a neutral solution, it had only partially digested a similar quantity of membrane in thirty hours. In all the experiments the digestions were made with 15 grains of fibrin thoroughly washed and reduced to fine, dry powder. This was softened by boiling water after weighing and allowed to stand twenty-four hours before it was used for digestion. He thought that the discordant results obtained by many could be explained by the use of such substances as cooked meat, boiled white of egg, etc., as materials to be digested, as the amount of these substances digested would be very difficult to estimate accurately.

In concluding he said that while papoid would not do all that was claimed for it, it was still a very useful addition to the therapeutics of dyspepsia. It was probably, for the experiments made by him, not seriously injured by being kept in an acid medium for two to three hours; hence, although its action might be nil in the stomach, it would be capable of resuming its activity in leaving that viscus well mixed with the food. Its advantages in diphtheria as a local agent are threefold: first, it acts in a neutral solution better than any of the other ferments; secondly, it is not affected by the accumulation of the products of digestion (it acts best in very concentrated fluids); thirdly, it is antiseptic as well, and completely destroys the peculiar fetor of the disease.

NEWS ITEMS.

The Just Conclusion of a Malpractice Suit.—The suit of Mrs. Stogdale, against Dr. W. H. Baker, for malpractice in the removal of the ovaries, at the Boston Free Hospital for Women, in which $10,000 damages were claimed, has been decided in the physician's favor, after four trials. A remarkable and excellent feature of the trial was the action taken by the counsel for the defence, obliging the plaintiff to give bonds for costs, if the verdict was against her.

The courage and fortitude displayed by the defendant in this case, are worthy of imitation by others under like circumstances.

Leprosy in America.—*The Sanitary News* reports cases of leprosy as coming to the notice of the authorities at Savannah, and in a small town in Kansas.

A Suit for Typhoid Infection.—Suits at law having a sanitary bearing are becoming very common. The latest one is reported from Indianapolis. William Shiel has sued John Best for $1500 in damages. Shiel's family was prostrated with typhoid fever, and he charges that Best emptied slops and general filth into a cesspool so

close to his house that the disease was the result. Best claims that Shiel constructed a vault but a few inches deep, and that a heavy rain washed its contents into the cellar of Shiel's house, and that that was the source of the disease.—*Sanitary News*, December 24, 1887.

Family Hygiene during Infectious Disease.—*The Sanitary News* of December 23, 1887, gives some suggestions for the prevention of the spread of an infectious disease, taking it for granted that a case has developed in a family, and that it is desired to prevent its spread and not remove the patient from the house. They are formulated from a paper read by Francis Vacher, Health Officer of Birkenhead, England. The first requisite is to prepare a room in which the patient may be isolated. It should be cleared of all furniture which is not absolutely required, and the floor should be cleansed and left bare. The room should be regarded as a source of danger and should be cut off from the rest of the house by means of a sheet, or sheets, wrung out with a disinfectant solution and kept moist therewith, suspended outside each door, and reaching to the floor. Everything taken into that room should be regarded as infected, and nothing should be removed without disinfection. Towels, pocket-handkerchiefs, soiled linen, etc., used in the room, should be boiled in a disinfectant solution. The patient should be washed with a disinfectant solution and soap and water, and in scarlet fever the body should be anointed with oil. An open fire should be kept in the room, winter and summer, and if no ventilation is provided in the house construction, a window should always be left open a little. Dogs, cats, and other pets should be excluded from the room, as they carry infection readily. In case the patient should be so unfortunate as to die, the body should at once be swathed in disinfectant cloths, and should be sealed in a metal coffin before being removed from the room. When the room is no longer required by the patient it should be thoroughly disinfected. It should then be left open to air thoroughly for a week, all its contents should then be washed, and all suspected articles, such as toys, should be burned. With this treatment, an infected person should be taken good care of, and the case terminate without communicating the disease to others.

Successful Removal of a Pin Impacted in the Larynx for Two Years.—DR. LANGMAID, of Boston, reports, in the *New York Medical Journal* of December 24, 1887, the case of a woman from whose larynx he extracted a large pin, swallowed two years previously. Mackenzie's large laryngeal forceps was the only instrument sufficient to remove it from the ventricular band.

Bequests to Medical Charities.—By the will of the late Mrs. J. J. Astor, of New York City, $160,000 are bequeathed to charitable institutions, of which St. Luke's Hospital gets $25,000, and the Women's Hospital the same amount.

In Boston, the will of the late William Hilton provides that the Massachusetts General Hospital and the City Dispensary shall each receive $50,000.

Professor Eulenburg.—The death of this well-known hygienist occurred in Berlin, December 7, 1887, in his seventy-sixth year. Early in life he studied Swedish gymnastics in Stockholm, and subsequently introduced into Germany many procedures for mechanical and orthopædic treatment. He had recently presented $2500 to the Berlin Medical Society.

The Death of Leon Bassereau is announced, at Paris, aged seventy-seven years. He was a cousin of Madame Recamier, and a man of high accomplishments. His fame as a medical man rests upon his work as a syphilographer; he was the author of the "dual theory" of syphilis. He was a Chevalier of the Legion of Honor, and a member of various societies. His writings were on the Dual Theory of Syphilis, and on the Influence of Iodide of Potassium in Syphilis.

CORRIGENDUM.

Page 748, 2d column, 25th line, for "three" *read* "these," and on the 3d line from bottom for "other" *read* "outer."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM DECEMBER 25 TO DECEMBER 31, 1887.

BAXTER, J. H., *Colonel and Chief Medical Purveyor*—Ordered to inspect the medical purveying department at St. Louis, Mo.—*S. O. 296, A. G. O.*, December 23, 1887.

BANISTER, WILLIAM B., *First Lieutenant and Assistant Surgeon.*—Ordered to proceed to Fort Lowall, Arizona, and report to the commanding officer for duty; upon the arrival of Surgeon P. J. A. Cleary, at Fort Wingate, New Mexico—*S. O. 135, Department of Arizona*, December 20, 1887.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING DECEMBER 31, 1887.

BIDDLE, C., *Passed Assistant Surgeon.*—Detached from the Marine Rendezvous, Philadelphia, and placed on waiting orders.

CLEBORNE, C. J., *Medical Director.*—Detached as member of Medical Examining Board, December 31, and ordered to Norfolk Naval Hospital, January 5, 1888.

BRADLEY, M., *Medical Inspector.*—Detached from Naval Hospital, Norfolk, January 5, 1888, and placed on waiting orders.

CLARK, J. H., *Medical Inspector.*—Detached from special duty at Portsmouth, New Hampshire, and ordered as member of Examining Board at Washington.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING DECEMBER 31, 1887.

BEVAN, A. D., *Passed Assistant Surgeon.*—Resignation accepted to take effect January 31, 1888, and leave of absence extended to that date, December 31, 1887.

BRATTON, W. D., *Assistant Surgeon.*—Granted leave of absence for thirty days, December 30, 1887.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

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VOL. LII. SATURDAY, JANUARY 14, 1888. NO. 2.

ORIGINAL ARTICLES.

SELECTED CASES OF SARCOMA OF BONE AFFECTING THE LOWER EXTREMITIES.[1]

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THIS subject is fraught with great interest on account of the meagre knowledge which we possess, and of great importance owing to the fact of the terrible mortality which attends the disease. Sarcoma of bone inevitably terminates in death, and its early recognition and its complete removal are subjects which are worthy the profound study of the surgeon. I believe that sarcoma, in the large majority of cases, is a disease more deadly in its nature than any other variety of malignant tumor. Its unprecedented rapidity of growth, its widespread metastases, its insidious development from unknown causes, its uncertainty of early diagnosis, its absolute certainty to kill, make this disease a subject of paramount importance.

The appalling impressions which I have received from a large clinical experience with this dreadful malady lead me to regard this neoplasm as one to which the thoughtful attention of the surgeon should be assiduously directed.

Entertaining these views, as I do, not from hearsay, nor from book-knowledge, nor from a narration of recorded cases by others, but from actual clinical experience with the disease, I know of no subject to which I could invite attention that concerns us more than this.

In studying the subject there have arisen a number of important questions which I shall introduce, with a view to elicit discussion upon these points. It is in this way, by accumulative investigation, and by comparison, that the surgical profession can acquire knowledge upon such diseases. The malignancy, the etiology, the clinical history, the prognosis, the diagnosis, and the treatment, besides other important subjects in regard to tumors, can only be understood by an exhaustive study of a number of individual cases. The consideration of a typical case of sarcoma of bone, for example, affords no reliable knowledge which could be applied to another case of sarcoma of bone. This variety of malignant tumor of bone has a wide range of difference, and it is only by comparison that we can arrive at any satisfactory knowledge.

Before taking up a study of individual cases, a few remarks upon the general subject of sarcoma in relation to its definition, its origin, its situation, its etiology and its classification seem pertinent.

The first question which naturally suggests itself is, What is sarcoma?

Sarcoma is a tumor; and a tumor, according to Virchow, is "a circumscribed new formation of tissue." All tumors are divided into three groups:

I. *Histoid tumors*, which are composed of some one of the many forms of connective tissue. They are derived from the middle blastodermic layer of the fœtus. Lipoma is a typical example.

II. *Organoid tumors*, which are composed of several of the normal tissues of the body, and these tissues stand in relation to each other as in the organ. They are derived from the middle blastodermic layer also, with some elements derived from the internal or external blastodermic layer of the fœtus. Adenoma is a typical example.

III. *Cellular tumors*, which are composed of tissues differing from the normal tissues of the human body in the extreme abundance of the cells. They are derived from any of the three blastodermic membranes of the fœtus. There are only three tumors belonging to this group, viz., carcinoma, sarcoma, and granuloma. It is thus evident that *sarcoma* is a tumor which is composed of tissue cells which normally belong to the human body, and that only extreme proliferation of normal connective-tissue cells is necessary to produce a sarcoma. It is, therefore, a growth of no foreign tissue, and the only difference between normal connective tissue and sarcoma lies in the extreme and rich abundance of the cells. The general impression that in malignant tumors there are new structural elements is incorrect, for cancer as well as sarcoma and granuloma, as also all other tumors, is simply the result of excess in growth of normal tissue, or else the presence of normal embryonal tissue in places where that tissue does not physiologically belong.

In the three germinal layers: 1st, the epiblast, from which skin develops; 2d, the mesoblast, from which distinct organs and systems of organs develop; 3d, the hypoblast, from which mucous membrane and glandular organs develop, there is found a key to a solution of the origin of these malignant and benignant growths. A careful study of the situation of tumors in the body demonstrates the fact that

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tumors are found, as a rule, in parts of the body where in the fœtus the cell growth is complicated, as, for example, at the junction of the skin and mucous membrane. Here there is found a union of the tissues derived from the epiblast, the mesoblast, and the hypoblast. Cancer of the lip is a good illustration of this law. Tumors also develop at points where there is constant irritation or mechanical activity; an illustration of this law is found in malignant disease affecting the lips, the pylorus, the cæcum, the rectum, or the testicle when it remains in the inguinal canal. Tumors again develop in special organs which are the seat of physiological activity, as, for example, the breast, the uterus, the testicle, and the parotid.

From such observations a fair inference can be drawn as to the etiology of malignant and benignant growths. The composition of these growths has already been shown to be of no new structural elements, but of perfectly normal elements and cells of which the human body is composed, only those cells are found in places where they do not belong, and where there is great mechanical or physiological activity. Might not the mere transposition of the cells in the embryo from places where they normally belong to places where they are foreign, associated with the fact that just these places where tumors grow are precisely those places where there is a union of the different germinal layers in the embryo, explain the etiology of tumors? The question of traumatism in developing tumors can be reconciled with Cohnheim's theory of modern pathology; because it is traumatism, perhaps, more than any other agency that produces proliferation in cell growth. The traumatism in itself may not be capable of even producing a malignant tumor; but traumatism in places where a transposition of cells in the embryo has already occurred might act as a predisposing cause to the development of malignant tumors.

With reference to the subject of a special bacillus to explain the presence of a sarcoma, for example, little can be said at the present time. That such an hypothesis may be true is still *sub judice*, and until we are possessed of more reliable knowledge upon this subject, based upon experimental work, the question cannot be said to be settled. In the light of our present knowledge of the etiology of suppuration it is not at all unlikely that in the near future this theory may be proved. However this may be, the law of the transposition of cells, and their proliferation by traumatism would in no wise affect the present state of the subject.

These remarks seem pertinent in order to bring out clearly the place which sarcoma has among the group of tumors. The digression also serves to explain some points in reference to the relation of traumatism to malignant tumors. It is to sarcoma in particular that traumatism seems to act as an exciting cause, and in the cases reported I shall call attention to this fact in connection with some striking examples of sarcoma following rapidly upon traumatism.

Sarcoma has been classified by Virchow in a way that is generally accepted by surgeons and pathologists. It is the best classification in use and with but a slight modification I shall employ it upon the present occasion. Sarcoma may be divided: 1st, *according to the character of the cells:*

1. Spindle-cell sarcoma (like ordinary connective-tissue cells).
2. Round-cell sarcoma (similar in form to leucocytes).
3. Giant cell sarcoma (such as are seen in medulla of bone).
4. Mixed cell sarcoma (composed of some or all of the above variety of cells).

and 2d, *according to the character of the connective substance.*

1. Connective tissue.
2. Gelatinous tissue.
3. Fatty tissue.
4. Cartilaginous tissue.
5. Osseous tissue.

Hence a sarcoma is named according to the variety of connective tissue substance of which it is composed together with ordinary connective-tissue cells.

Thus, for example, if gelatinous tissue is connected with pure connective tissue cells a myxo-sarcoma is developed. I have a beautiful illustration of a myxo-sarcoma growing upon the leg of a patient upon whom I expect to operate. If fatty connective tissue is in combination with ordinary connective-tissue cells, a lipo-sarcoma is developed, of which also I have a typical specimen.

Occasionally a sarcoma is composed of many forms of connective-tissue substance, and it is then termed a mixed sarcoma. This form must not be mistaken for a mixed cell, which differs from a mixed sarcoma in the way already mentioned.

In discussing sarcoma limited to the long bones a very simple classification can be made upon a pathological basis, viz.:

I. Subperiosteal sarcoma.

II. Central sarcoma.

The *clinical history* of sarcoma is an interesting feature of the disease. It is the malignant disease of early childhood, and has been seen in an infant under one year. As a rule, it is a tumor which develops suddenly and which runs oftentimes a rapidly fatal course. In two cases only have I seen the tumor grow slowly. Sarcoma of bone is usually a nodular, painful, rapidly growing neoplasm which in the later stages begins to ulcerate. If it grows from the subperiosteal tissue it is found to affect the shaft of the bone; is not distinctly circumscribed, grows very rapidly, and is not associated with inflam-

matory processes. If the sarcoma grows from the centre of the bone it usually affects the extremities of the bones instead of the shaft; it is a distinctly circumscribed neoplasm instead of a diffuse swelling, and grows slowly, which is in marked contrast to the subperiosteal variety. The slow growth is due to the fact that absorption of bone must take place by pressure of the tumor. This pressure causes atrophy of bone, and this process is necessarily slow. The central sarcoma has an egg-shell crepitation in the later stages of the disease. This crepitation is due to the breaking of the attenuated and fragile shell of bone which has been pushed out by the growth from within, and is a pathognomonic symptom of central sarcoma.

The malignancy of sarcoma is manifested by its widespread metastases, by its complete annihilation of adjoining tissue, by pressure effects, and by hemorrhages due to ulceration, by its infiltration through bloodvessels in the majority of cases, and, finally, by its rapid strides toward a fatal termination unless interrupted by a radical operation.

The *diagnosis* of sarcoma in its early stages is often very difficult. The microscope only can decide in some cases. Time, which might afford definite information, cannot be utilized for the purpose of diagnosis. Procrastination in coming to a decision is too dangerous an agency to employ to settle such a momentous question. The use of the harpoon will throw intelligent light upon this doubtful and grave question, and settle beyond all peradventure the malignancy of the growth.

Great care should also be exercised in not making undue haste in coming to a conclusion as to the question of a growth being sarcomatous. I have had three cases sent to me for the purpose of amputation on account of sarcoma. Each of these three cases proved to be a chronic inflammation of bone, and each was completely cured without amputation.

One of these cases was of the thigh, the other two cases were of the tibia, and all three cases had consulted surgeons, who pronounced the neoplasms malignant and advised amputation.

The points of differential diagnosis between sarcoma of bone on the one hand, and chronic inflammation of bone on the other hand, are as follows:

SARCOMA OF BONE.	CHRONIC INFLAMMATION OF BONE.
1. Attacks extremities unless subperiosteal.	1. Attacks the shaft.
2. Forms soft swelling in comparison with sclerosis of bone.	2. Forms hard smooth bone.
3. Rapid in its course.	3. Slow in its course.
4. Distended veins over the surface of tumor.	4. No distended veins over surface as in sarcoma.
5. Does not invade joint.	5. Usually invades the neighboring joint.
6. Circumscribed areas of fluctuation over swelling where cysts filled with bloody serum are found.	6. There may be diffuse area of fluctuation; but pus is found instead of bloody serum.

Another very important differential diagnosis must be made between sarcoma and carcinoma.

SARCOMA.	CARCINOMA.
1. Origin of growth is from the mesoblast.	1. Origin of growth is from mesoblast and also from hypo- or epiblast.
2. Disseminates by bloodvessels.	2. Disseminates by the lymphatic channels.
3. Tumor may be enclosed in a capsule.	3. Tumor is never enclosed in a capsule.
4. Cachexia appears late in the history of the tumor.	4. Cachexia appears early in the history of the growth.
5. Disease of early life or middle life.	5. Disease late in life as a rule.
6. Not so painful a tumor as carcinoma, and may develop with little or no pain.	6. Sharp, lancinating pains as a rule.

The *prognosis* in sarcoma is as gloomy as can be imagined. It is a disease which destroys life rapidly, unless arrested by amputation. The prognosis may be modified as regards time by the situation and the particular cell variety of the sarcoma. In whatever way we look at the prognosis it is serious. On the other hand a radical amputation may rescue a patient's life even in the cases of the most malignant variety. I shall furnish examples of this fact in the list of the cases that I have operated upon within the past few years.

The *treatment* of sarcoma of the long bones is simple, because there is but one operation, and that is amputation. From an experience derived from a number of these cases of sarcoma of bone, and from opinions formed after careful study of the cases of others, I am more and more impressed with the fact that amputation is the only operation which should be contemplated. I refer to sarcomata of the long bones. The operation of exsection or enucleation, and an application of caustics are, in my humble judgment, productive of harm; because the disease is not as a rule radically removed by these methods, and oftentimes the tumor returns very rapidly, and the operation seemed only to add fuel to the fire.

I believe that in all cases of sarcoma of the long bones amputation should be decided upon at the earliest period possible, and the operation performed without delay. At the point of election I would suggest an amputation which would remove the entire bone affected, whether it is a subperiosteal or central sarcoma. This necessitates an amputation of the lower part of the thigh in case the tibia or fibula is the seat of the neoplasm. It necessitates an amputation of the hip-joint when the tumor is subpericsteal, and involves the shaft of the femur. In view of the great mortality of hip-joint amputation, a possible exception might be made in case of a central sarcoma of the condyle of the femur which was recognized early, and which was small in size. By amputation in the lower third of the femur in sarcoma of one of the bones of the legs, the popliteal glands are thus removed, and while this point would con-

cern us more if the disease were cancer. yet I have seen a case of sarcoma affecting those glands.

The remedy of amputation which is suggested. is a severe one; but the disease for which the amputation is performed is a uniformly fatal one if left to nature, and in view of the great malignancy of sarcoma, I believe the operation should be the most radical one consistent with a due regard for the life of the patient during the immediate performance of the operation. It must be remembered that the patient is suffering from a uniformly fatal disease, and the chances of escape from it are in proportion, within proper limits of course. to the distance at which the limb is removed from the seat of the malignant tumor.

In offering a succinct report of a few of my cases of sarcoma of the long bones of the lower extremities, I shall endeavor to dwell upon the particular features of each case, and then in conclusion deduct some inferences which the study of these cases collectively seems to warrant. In the data which I shall give in the final conclusion I shall avail myself only of those cases which I have had under treatment. At some future time I intend to tabulate my cases of sarcoma of the long bones of the upper extremities, and upon another to group the cases of sarcoma of the skull and pelvis. I have carefully prepared notes of upward of fifty cases of sarcoma. of which number thirteen belong to the lower extremities. It is to a study of this group that I shall now invite your attention. Only those where the diagnosis was confirmed by the microscope will be considered.

I have had a number of cases where the sarcoma has affected the lower extremities; but where the starting-point was not from the periosteum or bone. This separate group. which forms a collection of great interest, I shall not embrace in the present paper. These sarcomata grew from fascia and lymphatics, and from the intermuscular septa. and from pigmented moles, which I believe are dangerous to leave upon the body, because they may become the starting points for sarcomatous ulcers. I shall also exclude from the present group cases of sarcoma developed from a retained testicle in the inguinal canal. and shall refer only to sarcomata having their origin from bone or periosteum.

CASE I. *Subperiosteal sarcoma of femur: amputation at hip-joint; death.* (Examined by Dr. Biggs.)—J. T.. æt. thirty-six. admitted to St. Vincent's Hospital May. 1884. He was sent to me by Dr. W. H. Robb. of Amsterdam. N. Y. August. 1883. patient was thrown from the end of a railroad platform-car. his left leg being caught in an iron upright. by which he was held suspended until released by some bystanders. Dr. Robb saw him at once. and found a transverse fracture of the thigh just above the knee-joint. The fracture was dressed in the usual manner with long side-splints and the weight and pulley. At the expiration of one month Dr. Robb found no union of the bone, and applied a plaster-of-Paris bandage. At the end of a fortnight the plaster was cut down, and still no union of the fracture. At the time of this dressing there was noticed a change in the circulation about the seat of the fracture; and this was supposed by the attendants to be a good omen, because it indicated that nature was making an effort to throw out bony callus. Another plaster-of-Paris bandage was applied for a fortnight. and then this dressing was removed. There was now noticed at the seat of the fracture a decided increase in the size of the limb, and there was no attempt at union. The plaster was now discontinued. and a splint was made of leather to support the ununited fracture. The patient was sent to me. The diagnosis of malignant disease which was made by Dr. Robb was confirmed, and notwithstanding the fact of the nature of the tumor, the patient refused to have his thigh amputated. He remained several months in St. Vincent's Hospital, during which time there were periods when the tumor seemed less painful and diminished in size, especially after the bloody serum was withdrawn by the aspirator.

In July the patient not only gave his consent to an amputation, but desired it in view of the unmistakable diagnosis of malignant disease. The tumor now had become enormous in size, and the patient's strength was very much reduced by repeated secondary hemorrhages. The tumor was also ulcerating and the discharges very foul. The amputation was performed in a little less than one year from the time of the original injury. The operation was not successful, and the patient sank rapidly, and died in a few hours.

Remarks.—The interesting features connected with this case are. 1. The relation of traumatism to the development of sarcoma. 2. The fact of the development of sarcoma from a traumatism of bone resulting in a fracture, and that the seat of fracture was the starting-point of the disease. 3. The probable chances of success if the patient had consented to amputation as soon as the diagnosis was made positive. 4. The rapidity of the growth in a few months.

CASE II. *Subperiosteal mixed-cell sarcoma of femur; amputation at hip-joint; recovery.* (Examined by Dr. Grauer.)—W. R., æt. seventeen. admitted to Harlem Hospital May 19. 1887. Patient sent by Dr. Johnson, of Blairstown. N. J. In January, 1887. the patient felt a dull, aching pain in the left thigh, the pain increasing at night. Shortly after the onset of the pain. a swelling appeared, which rapidly increased in size. Three months later the patient consulted a physician. who aspirated the swelling. and drew off several ounces of bloody fluid. In May. 1887. about five months from the first appearance of the pain. and three months from the beginning of the swelling, he was sent to me. His condition at this time was very unfavorable. From a strong. healthy boy in a few months he became feeble. weak. and cachectic. In a few weeks he lost upward of forty-five pounds. The family history as regards hereditary influence is negative. The urine

was normal. The tumor measured twenty-nine inches in circumference. On May 26, 1887, five months from the date of the appearance of the first signs and symptoms of the tumor, I performed amputation at the hip-joint. The hemorrhage was controlled by a simple elastic band, as suggested by Lloyd, of Birmingham, and applied by Dr. Garmany. The patient rallied from the shock, and made a good recovery, debarring a secondary hemorrhage, which occurred on the twenty-ninth day following the operation. The hemorrhage came from the artery which accompanied the ligamentum teres, and this hemorrhage, it is interesting to note, was caused by sloughing of the ligamentum teres, which was not cut off close to the bottom of the acetabulum, but instead was cut off close to the head of the femur: as a result, the ligamentum teres sloughed, and the hemorrhage occurred.

It is a point worthy of attention to cut this ligament close to the femur, and thus avoid this accident. The simple band, as applied, completely controls all hemorrhage, except from the obturator artery, which cannot be compressed, owing to its passage through the obturator foramen. If this fact is known, the surgeon can at once seize this artery, and then all bleeding is completely arrested until the other vessels are ligated. The patient is now in Bellevue Hospital, and there is no evidence of any return of the disease.

Remarks.—The chief points of interest in this case are, 1, the rapidity of this growth. There were only five months intervening between the onset of the first symptoms and the time of the operation. 2, the simple and efficacious method of arresting the hemorrhage. 3, the gloomy outlook for the patient, though he recovered from the operation.

In thirty-six cases of subperiosteal sarcoma of the femur, reported by Butlin, there was a death-rate of twenty-five per cent. in operations for removal of the disease. Out of the thirty-six cases only one could be said to have been completely cured by the operation, and about this one case there seems to be a doubt as to whether it was not a central sarcoma. The period of three years is taken as the shortest possible time which must elapse before a patient can be said to be cured. The prognosis is, therefore, very serious—for there is not a single case recorded in this list of subperiosteal sarcomata of the femur that was cured. This is most certainly a startling fact in connection with a study of these cases.

CASE III. *Subperiosteal sarcoma of fibula (round-cell variety).* (Examined by Dr. Grauer.)—J. H., æt. four. Family history is negative. Patient received an injury to the fibula, February, 1881, and shortly after this injury a small swelling began, which grew rapidly, until at the end of six months the lump became very painful, and the patient was unable to walk. On May 8, 1882, I amputated the limb just above the knee-joint. The tumor was examined microscopically, and pronounced to be a round-celled sarcoma. The boy rapidly improved in his general condition, and has been perfectly healthy ever since the operation, with no evidence at any time of a return of the disease. It is now nearly five years since the amputation, and a long enough time has elapsed to make it certain that no return of the disease will ever occur.

Remarks.—This case is interesting from several points of view. 1. The relation between traumatism and the development of sarcoma is demonstrated in this case. 2. The slowness of the growth in subperiosteal sarcoma. 3. The complete recovery, with no return of the tumor, notwithstanding the fact that the microscopical examination revealed the presence of the most malignant variety of sarcoma. 4. The encouragement to operate in these desperate cases, though the prognosis seems absolutely fatal at the time.

CASE IV. *Subperiosteal sarcoma of tibia.*—T. M., æt. seventeen. Family history is negative. Patient previous to April, 1884, enjoyed excellent health. In April, 1884, he struck his knee against a coal car. The injury was apparently slight. A small lump was formed, which soon grew painful. Patient consulted Dr. R. H. Gibbons, of Pittston. He diagnosticated sarcoma, and advised removal of the limb. Patient would not at that time consent to any operation. He was sent by Dr. Gibbons to me in August, 1884, about five months from the date of the injury. I advised immediate amputation, to which proposition he dissented. Upon return to Pittston in the latter part of August, he allowed Dr. Gibbons to try to enucleate the tumor, but would not consent to an amputation. In about three weeks after the operation, the tumor returned, and grew very rapidly until November 16, 1884, when he requested his leg to be amputated. At this late date, patient had become too weak, and finally died December 4, 1884, without an amputation, about nine months from the time of the injury.

Remarks—A piece of this tumor was examined microscopically and pronounced to be a subperiosteal sarcoma involving the upper end of the tibia. The chief points of interest in this case are: 1. The sarcoma following directly upon receipt of traumatism. 2. The rapid course of the disease. 3. The consequences of refusal to an amputation in face of a positive diagnosis of malignant disease. 4. The rapid return after enucleation.

CASE V. *Subperiosteal sarcoma of tibia, mixed sarcoma, consisting of a variety of connective tissue substance.* (Examined by Dr. Biggs.)—Mrs. B., æt. nineteen, was admitted to Bellevue Hospital October 1, 1885. Patient has always enjoyed good health. Nine months previous to October, 1885, patient felt a sharp pain in left leg just above the ankle. The pain lasted but a few seconds and then disappeared. There were occasional shooting pains in the leg until three months later, when severe cramps occurred. The foot became slightly œdematous and the swelling involved the leg. Patient at

this time was six months pregnant, and the swelling and pain now disappeared until the child was born. Shortly after parturition the swelling and pain returned and the tumor grew very rapidly.

In September, 1885, the patient was sent to me by Dr. Anderton, who made the diagnosis of sarcoma of the tibia, in which I concurred, and at the same time advised immediate amputation. On October 3, 1885, about nine months from the time of the first appearances of pain and swelling I performed a supracondyloid amputation of the thigh. Patient rallied from the operation and the wound healed by primary intention.

On April 17, 1886, seven months after amputation of the thigh a tumor developed upon the lower jaw. I removed this tumor at St. Vincent's Hospital. The tumor was sarcoma and appeared three months previous.

In March 23, 1886, patient returned to St. Vincent's Hospital with a tumor situated upon the upper jaw. This appeared a few weeks previous and grew very rapidly after the operation upon the lower jaw. In May, 1886, the clavicle became involved and then the lungs, and on May 11th the patient died.

Remarks.—The points of interest in this case are: 1. The rapidity of the growth of the tumor, as well as the multiple return of it, in which the metastases occurred in the bones, but finally in the lungs, which were examined by Professor Janeway. 2. The absence of any return of the disease in those places where an operation was performed. 3. The temporary arrest of the growth for several months during the period of pregnancy, and its very rapid growth immediately after parturition. This same phenomenon I have seen in a case of sarcoma of the breast. The growth was arrested during pregnancy; but grew rapidly immediately after parturition. The pregnant state seems to hold in temporary abeyance the growth of malignant tumors; but after this condition is removed, the growth takes place with great rapidity. 4. The medico-legal controversy which grew out of the treatment of this case—I refer to this point on account of the importance of the subject.

After the amputation was performed, the husband of the patient began a suit for $20,000 against me for amputating the leg on the ground that the tumor could have been removed and the limb saved. Notwithstanding free permission from the patient, as well as from the husband, to do as I thought best in the operation after cutting first into the growth and thereby giving her the benefit of the doubt, I was confronted with this dilemma. It is needless to state that the suit was never brought to trial. The full, verbal permission to amputate and the microscopical evidences of sarcoma, and the rapid return after a few weeks were all questions of great importance from a medico-legal aspect. The husband made some serious threats of a violent nature; but the sudden return of the disease, and the great suffering of his wife induced him to come back for further advice. I consented to operate on the upper jaw and afterward to operate upon the lower jaw, at the urgent request of the husband, whom I compelled to make his application in writing with full permission to operate as I thought best.

There is so much ignorance among the less educated upon the nature of the malignancy of certain tumors, and so great a natural antipathy to amputation for the relief of these tumors, that a surgeon, in order to protect himself, should refuse to have anything to do with uneducated patients unless he has obtained their permission in writing. A surgeon cannot otherwise protect himself against the unprincipled lawyer who plays upon the feelings and sentiment of his clients with visions of a large sum of money for supposed malpractice.

Case VI. *Subperiosteal sarcoma of tibia.*—W. R., æt. forty, admitted May, 1886, to Bellevue Hospital. Patient's family history negative. Two years and a half previous to his admittance he noticed a lump or swelling upon the internal malleolus of the left leg. There was no history of injury. The growth of the tumor was slow, so slow that he was, during all of this time, able to wear a shoe so constructed as to fit the slowly changing shape of his foot, which had the appearance of an aggravated talipes valgus. The urine contained considerable albumen, and a few granular and hyaline casts. He had been addicted to a free use of stimulants for many years. Diagnosis of *sarcoma* of tibia was made by Professor Sayre as soon as he examined the patient, and he sent him to me for operation, as I was on duty at the hospital at the time. It was deemed best to amputate the leg for the relief of the sarcoma, although the condition of his kidneys was known at the time of this decision. I performed the circular amputation, and the stump at the first dressing appeared in excellent condition, save a little bichloride irritation. He developed delirium tremens, and, with the kidney complication and exhaustion, died in ten days following the operation. The microscopical examination confirmed Dr. Sayre's diagnosis of sarcoma.

Remarks.—The points of interest in this case are: 1. The slow growth of this subperiosteal sarcoma, and in this respect in marked contrast to the other subperiosteal sarcomata. 2. The absence of pain. 3. The cause of death which was due to delirium tremens and uræmia, and not directly to the operation. 4. The difficulty of diagnosis in the early stages.

I have now two cases where sarcomata are present, but where the growths have occupied two years in developing, and on which account both of these patients refuse to have any operation performed. These patients are still alive, and although the disease in each case is progressing slowly, and the diagnosis seemed at first obscure, these tumors, without doubt, will suddenly grow rapidly at no distant date. These two cases present very unusual phenomena in regard to the growth of sarcoma.

CASE VII. *Central sarcoma of tibia, mixed, containing many different varieties of connective tissue.* (Examined by Dr. Biggs.)—J. F., æt. nine. In April, 1887, was struck on the lower end of the leg. Previous to this he had always been well. Following the blow a small swelling appeared upon the front and lower part of the leg. The lump grew rapidly, and he began to walk upon his toes. Four months after the above-mentioned injury the patient was brought to me. The skin over the tumor was healthy, and the swelling was about the size of an egg. There was a suspicion of an abscess in the bone. The parents consented to an exploratory operation, but would not consent to an amputation in case the exploration revealed the presence of sarcoma. The tumor was scooped out and the wound for a short time did well. He was removed from the hospital September 28, 1887, and taken home.

In November, 1887, he was brought back to St. Vincent's Hospital. The tumor was now as large as an orange, and presented the cauliflower excrescence so characteristic of these malignant growths in the later stages. The mother now consented to amputation; but made the proviso that the amputation should be below the knee. Accordingly, I performed the amputation on November 31, 1887. The Esmarch bandage was applied; but it was employed above the tumor, as it should be in cases of malignant tumors. A sarcoma should never be compressed.

Remarks.—The chief points of interest are: 1. The relation of traumatism to the genesis of malignant tumors. 2. The rapidity of the growth for a central sarcoma. 3. The impropriety of any exploratory operation. 4. The necessity of an amputation as early as the disease is recognized. 5. The necessity of full permission to amputate in case an exploratory operation is deemed necessary for the purpose of a diagnosis. 6. The presence of egg-shell crepitation, indicating the central origin of the tumor in contradistinction to the subperiosteal variety. 7. The encouraging outlook for this boy in contrast with the boy who had a subperiosteal sarcoma of the thigh. In twenty-nine cases of central sarcoma of the leg reported by Butlin, there was a death-rate of nearly thirty per cent. in the operation for removal of the disease. Out of the twenty-nine cases one patient only could be said to have been completely cured, taking three years as the standard of time. This high rate of mortality in the operation itself is a most astonishing fact, and is only surpassed by one still more startling, that out of this original list of twenty-nine cases only one single case was reported as having been completely cured.

CASE VIII. *Myxo-sarcoma of tibia.* (Examined by Dr. Biggs.)—T. W. æt. thirty-nine, admitted to Bellevue Hospital October 22, 1887. Family history of no special importance. In September, 1887, patient was admitted to the medical ward of Bellevue Hospital on account of chills, pains in head, chest, and back, and a swelling upon the left leg at the seat of an old fracture. He also had purpura hemorrhagica over his legs, thighs, and abdomen. October 22, 1887, he had nearly complete suppression of urine with a large quantity of albumen and casts. His general condition was improved, and on Nov. 4, 1887, he was transferred to the third surgical division. I made a diagnosis of sarcoma, and this diagnosis was confirmed by Dr. Biggs, who found a myxoma in the fungoid growth, and the tumor had caused a pathological fracture. Patient was given special diet, and tonics, with a view to improving his general condition preparatory to an amputation. His appetite increased, there was only a small amount of albumen in his urine, and the prospects of a successful operation for the removal of his malignant tumor seemed encouraging. He was induced, however, to leave the hospital, to have caustics applied, and would not consent to an operation.

Remarks.—The points of interest are: 1. The development of a malignant tumor at the seat of an old fracture. This same phenomenon I have seen in a number of cases. In one case a child fell upon the back of the head and a sarcoma developed over the seat of a fracture of the occipital bone beneath a large hæmatoma; in another case a sarcoma developed in the line of union of a simple linear fracture of the skull; in still another case after a fracture of the femur. This development of a malignant tumor at the seat of an old fracture is characteristic of sarcoma; because carcinoma never starts primarily in bone; but is always the result of a secondary metastasis. For example, I removed a carcinoma of the breast in a patient some years ago, and within a year from the time of the removal of the breast the same patient fractured her femur while turning over in bed. This specimen I have in my possession, and it forms a unique example of carcinoma in bone from secondary deposit. Epithelioma, however, may arise primarily in a sinus leading to necrosed bone, the result of a compound fracture. In this case the starting-point is not in bone; but in an epithelial-lined sinus with the accompanying irritation, all of which conditions are favorable to the development of this special type of malignant disease. I have one specimen of epithelioma affecting the femur, arising from a condition just described.

2. The second point of interest in this case is the manifestation of the feeling of antipathy to a cutting operation as contrasted with the treatment by caustics. It is precisely in these cases that the surgeon should try to overcome the natural prejudices to an operation; because tampering with caustics and plaster in these cases of sarcoma is never productive of good, but adds additional danger, and hastens the final end. Much encouragement can be given in these days to patients about to undergo the ordeal of a surgical operation, and the surgeon should avail

himself of these arguments to convince kindly and forcibly the patient of his or her error, and persuade these unfortunate and misdirected patients into an operation which is their only safety. In my experience I cannot recall a local recurrence of sarcoma after amputation. This is certainly a most important and encouraging sign, and this fact alone ought to impress upon the surgeon the great necessity of early operation. It ought also to afford a source of great consolation to a patient suffering from this malignant disease.

Finally, I trust that I have been sufficiently clear upon the following points:

1. The importance of early recognizing the disease and the necessity of complete removal of the limb by amputation without delay.

2. The importance of carefully watching the subsequent history of patients upon whom an operation has been performed for the removal of sarcoma.

3. The publication of all cases, whether the result of the amputation was favorable or otherwise, in order to enable surgeons to collect reliable and trustworthy data for future study.

4. The importance of a microscopical examination of every sarcoma. Surgeons are of one opinion upon this point, that a microscopical examination is a *sine qua non* to insure the tabulation of a case for purposes of study.

5. The importance of a radical operation in these cases of malignant sarcomata affecting the long bones of the extremities, and the condemnation of partial enucleations and the use of caustics and plasters.

6. The importance of encouragement to patients suffering from malignant disease of the long bones, on the ground that early and radical operations, even in the most malignant cases, may result in perfect cure.

REMOVAL OF THE UTERINE APPENDAGES FOR DISEASE IN WHICH PAIN IS A PROMINENT SYMPTOM.[1]

By HOWARD A. KELLY, M.D.,
of Philadelphia.

The following remarks are based upon my personal experience, and the results in cases, some of which have been traced for several years, and now may be referred to as permanently cured or improved. Only by *permanency* can any proper estimate be placed upon the value of reported results, and while successful cases are being reported in large numbers daily, within a few days or weeks of the operation, but little has been said of the conditions in which the patients found themselves after one, two, and three years.

My opinion relative to the class of cases suitable for operation, to the results to be expected from operation, and as to the operation upon neurotic cases pure and simple, conforms closely to that expressed by Prof. Hegar in his monograph, *Der Zusammenhang der Geschlechtskrankheiten mit Nervösen Leiden und die Castration bei Neurosen.* Nearly as I agree with Professor Hegar, I differ very widely from many other "authorities," so called, in this much-contested field. Still more widely do I differ from many views which have gained currency in the profession at large, as to the indications for and against operation, the certainty and the permanency and the value of the results obtained.

The convenience of assuming the symptom *pain* as a characteristic factor of the group of heterogeneous cases we are about to consider is at once evident. With this symptom patients usually apply and ask for nothing than that their *pain* be relieved, and under present modes of treatment and indifferent specialization in medicine, in cases even of marked disease of a minor character, the patient often goes through a protracted course of treatment in which nothing is distinct outside of the subjective elements of the case. Pain alone drives most patients to consent to adopt whatever means the surgeon may propose as remedial. By thus emphasizing this subjective feature, and also by the natural history of the diseases, we exclude all those cases from our study in which *size* is a characteristic.

We have left then a great group of mixed pelvic diseases less in size but not in the elements of danger, causing more suffering, with greater certainty undermining the health, and in no sense less important than the large fibroid, dermoid, or ovarian cystoma, unless we measure disease by the tape-measure. "What the eye sees not the heart grieves not," is true of those who find it so difficult to realize the great hourly danger in which their patients may be living, in whom nothing may be apparent to the eye, and but little to an unpractised touch.

Common among the diseases referred to are:

Ovaries enlarged by cirrhosis.

Ovaries with extensive follicular degeneration.

Hemorrhagic ovaries.

Ovaries containing pus sacs.

Neuralgic ovaries.

Ovaries involved in a withering of the pelvic peritoneum with the tubes.

Tubo-ovarian disease with coexisting hydro-, pyo-, or hæmato-salpinx, these three names, however, signifying not the disease itself but an accident of the disease, which may be absent and the disease still exist.

Pyosalpinx is a misnomer, as the disease may exist in all its essentials, and the tube contain no pus, but the ovary may be converted into a large

[1] Read before the Philadelphia County Medical Society, December 28, 1887.

pus sac. In my experience, abscess of the ovary with a tube much thickened, gelatinous and friable on section, but containing no pus, is quite as frequent as a large tube sealed and distended with pus attached to a small ovary simply enveloped in inflammatory products. I believe that the entrance of the septic material into the ovary takes place through a ruptured follicle. In a case upon which I operated one year ago, my patient married a man suffering from gonorrhœa; she experienced no difficulty until the time of her first menstruation, when she was seized with violent pains, and remained an invalid ever after until I removed the mass.

Hydrosalpinx is more commonly associated with some mild non-septic pelvic inflammation which has resulted in sealing the fimbria, and hydrosalpinx results. It may, by distention of the tube, cause pain, but the morbid process usually long antedates the formation of any tumor. If this were not the case, the rational procedure would unquestionably be slitting open the tube on its dorsum, careful removal of the fluid, and an attempt to establish a pervious uterine opening by passing a small canula into the uterus, which could be removed later per vaginam. The disease, however, lies back of this, and the fluid formed is but one of its sequelæ. Here at once is a reason why operations upon tubes thus enlarged are not always and at once successful in curing the patient of all disability.

I am at present making daily visits to a patient operated upon in the Spring, from whom a large hydrosalpinx was removed, along with the ovaries and tube of the opposite side. Her uterus and structures lateral to it are now free from all sign of disease, but there still linger low down in the pelvis foci of inflammation in the cellular tissue, which, although objectively small, cause a disproportionate distress to the patient. The operation was here an imperatively necessary step, but still one step on the road to cure.

Hydrosalpinx is at times associated with anomalies in the development of the individual: thus I operated last week in Chicago on a married woman about thirty-eight, who had been a great sufferer ever since puberty. I found an infantile uterus, two very small, white ovaries, that on the left side being no larger than, and of the shape of, my thumb-nail, while vaulted over it was a large tube distended by several ounces of watery fluid. The indication in this case was not the size of the tube, but the establishment of the menopause to relieve painful ovulation. In pyosalpinx, on the other hand, the starting-point and focus of the disease are often the intensely poisonous contents of the tube, which involve surrounding structures by successive invasions; and here, were it practicable, the disease might often be cured by removing the tube alone, leaving the ovary; but of such a conservatism I do not approve, as the ovary without its duct is useless, even dangerous.

Of hæmatosalpinx I will not speak further than to say emphatically, that I do not believe that all these cases are extrauterine pregnancies, and to draw attention to the fact that the contents of the sac may be as acridly poisonous as that of pyosalpinx, and should receive the same extreme care in removal.

It would be better if *Pain*, per se, were never considered a sufficient indication for operation; or, at the worst, only those cases operated upon in which the most prolonged and painstaking care had failed to relieve, and where the intensity of the suffering must always seriously interfere with the capacity of the patient to enjoy life. We here meet the neurologist on common ground, and it would be better for all such cases if they first underwent a prolonged treatment at the hands of these specialists. A host of cases of neuralgic ovaries which have been sacrificed by the gynecologist would thus have been cured, and many cases which have been operated upon and not relieved would at least have been spared the ordeal of operation, and the too frequent reproach thus be spared the gynecologist, that he recommended the removal of a woman's ovaries, but she declined and a nerve specialist afterward cured her, and, to make the reflection worse, she has since borne a child.

I have a case in which a good friend considered removal of the ovaries would be necessary some two years ago, so great were the patient's sufferings, but with the gradual compensating hypertrophy of an insufficient mitrally diseased heart, she has improved and is now six months pregnant.

A prominent factor in causing this pelvic distress especially aggravated at the menstrual period, is, I am now convinced, large varicose veins in the broad ligaments. I think I can almost always recognize these cases now by the character of the pain, the face of the patient, and a peculiar sense of boggy fulness to the finger on vaginal examination. Constipation seems to be one factor in the causation, but while relieving constipation helps the condition, I have not found that it cures any case of long standing. Sequelæ of pregnancy may cause it. My experience as an operator leads me to reject removal of tubes and ovaries as in any way assisting a cure. In one case sent me by one of the most prominent neurologists in the country last spring, the patient is but little improved, although one of the veins tied and cut off was a half centimetre in diameter. As nothing else seems to do more than mitigate this condition, I propose yet to open the abdomen and simply tie the distended tortuous veins at either end, aspirating then, if necessary, and if the patient is no better she will at least be no worse off.

One class still remains, usually classed among the neuralgic cases, and this class Dr. S. Weir Mitchell

has happily defined, giving appropriate form to an idea which I have for some time entertained. They are those cases in which the expectancy and concentration of the attention on a normal function leads it to simulate disease in the expression of pain. These cases if operated upon rarely reflect credit upon the operator, and should ever be considered more in the province of the neurologist than of the gynecologist. I have never operated on a case of this sort, and never expect to.

We have here been speaking somewhat briefly of cases in which pain is the only local manifestation of disease. There is a small group of cases in which general nervous phenomena of an aggravated character seem after a time to subside into a local disease. I have in mind a case of salaam convulsions which lasted many months, was followed by severe neuralgic pains in various parts of the body, then by severe pelvic pains, and at the operation small cystic ovaries were discovered, and the patient promptly and completely cured by their removal. It is impossible, however, for any but a specialist to distinguish with certainty between those cases in which there are no manifest gross changes in these organs, and the cases about to be described, in which the trained touch can with certainty and exactitude determine the nature and extent of such changes. I know by my own progress in this matter how impossible it is for anything but the touch, which is daily exercising, improving, and correcting its inferences, to come to any definite conclusions in this matter, as to the size and position of the ovary and tube, whether cystic, how much enlarged, and if adherent: all these and other questions are but matters of daily practice for years to decide in all cases.

One of these cases I show you to-night (Mrs. J.) was treated by upward of thirty physicians, and had received almost as many differing opinions, no one recognizing the true nature of her disease, which I had the satisfaction of determining at once to be abscess of the ovary the instant my finger swept over the vault of the vagina. Another patient was treated for fourteen years, and her physician, recognizing some similar symptoms in a case upon which he saw me operating at my private hospital, sent her down to me, and she is now well. Here also I removed ovaries greatly enlarged by old encysted abscesses.

Briefly then, as to the status of this operation—the removal of *diseased* appendages, small in size, but in which pain is a prominent symptom—as a scientific operation.

1. It is scientific, because it deals with *diseased organs*.

2. It does more than almost any other single surgical procedure in relieving a large number of cases whose sufferings have been almost unbearable.

3. In *properly* selected cases the percentage of recoveries is over ninety-five per cent., and improving, and the percentage of cures equally large.

4. Unless we adopt the yardstick as our measure of disease, the indications for operative interference are often more urgent than in the case of most cystomata coming under our observation.

And lastly, all the steps of the operation, the technique of the procedure, have now been so widely appreciated, that it may be described as a *safe* operation.

In marked contrast to this statement might be cited the case of Sir Spencer Wells, in the days when this operation was in its infancy. We can here readily discover one reason why Sir Spencer has always been so bitterly opposed to operations of this class. He operated upon a woman fifty years of age, for the purpose of inducing the menopause. In opening the abdomen the intestine was cut, the ovaries were not completely removed, and the mesentery prolapsed from the wound, and a bad hernia followed. Such was the result of an imperfect technique in the hands of one who in the generation past did more for abdominal surgery than any other man of his time.

Of all questions relative to this work, that of *results* most nearly concerns us. As to the *immediate* result, life or death, I will speak of that under the title of danger of the operation. I refer here to the result relative to the *curing of the disease* in those cases which have recovered from operation. A satisfactory inquiry upon this heading will depend entirely upon the standard which we erect beforehand by which to test our results.

The brilliant results occasionally following this operation, and the many sanguine reports of operations in which the patients are reported to have been the most wretched of all sufferers, and by the abdominal section to have been at once and forever relieved from all pain, to have recovered health at once, and been able to return often to duties of a very laborious nature, have conspired to bring about such a state of professional opinion that cases which cannot show these results are thrown back upon the operator as failures.

There was at one time, when this operation was dangerous, some reason for this opprobrium, and the results gained were measured by the danger passed through, and often found inadequate, but with the great diminution of the danger the whole status of the question has altered. My own standard is this: Are the organs diseased? Will their removal cure the patient entirely, or will it relieve a large part of the suffering and at least make life more bearable. A result *absolutely* good is always to be desired; but a result *relatively* good is something to be very thankful for, and grasped in many cases. Not only the general profession but gynecologists themselves

are apt to place all hope upon the operation, like a throw of dice, and to forget that it is often more rational to handle the cases from the beginning of their treatment to the end, in such a manner that the operation is viewed by doctor and patient as simply a *step* in the treatment and progress toward cure.

Cases often require after-treatment, and some of my cases have only left me entirely well after weeks more of work. My operation removed, it is true, the focus of the disease, without which I could never have made any progress, but my after-treatment dealt with the disease products which may have been accumulating for years, the embers ever freshly kindling so long as the diseased tube and ovary remain, but now readily yielding to treatment. In other cases, I have been actually obliged to deal with disease of my own creating, for in three cases I have treated the women for cellulitic deposits formed, I believe, around the ligature at the stump.

Since my return from Europe on September 7th, I have operated upon fourteen cases of abdominal tumors, including hysterectomy and pyosalpinx. The last case is too recent to speak of, but not one of the others developed any fever after the operation, owing to my careful attention to the principles of antisepsis. A neglect of antiseptic precautions is criminal in any form of surgery. But this may be carried out with nothing but soap and water. The development of an antiseptic conscience is the chief point.

A simple transfixed ligatnre can readily rotate on its point of perforation, releasing the tissues and allowing secondary hemorrhage. To avoid the retraction of the tissues through the ligature, great care must be taken not to cut close to it. One serious error is cupping the stump, which should have an hour-glass form.

Dr. Dudley, of Chicago, uses a knot of his own invention, which I like best of all for most of these cases. It is made by entering the needle, with a double ligature, through the broad ligament, carrying it across, and reintroducing, bringing it out on the same side on which it entered. The needle is removed, and the loop carried over the whole mass to be tied off, and laid between the free ends of the ligatnre. This is grasped in the thumb and fingers, and drawn up tight; then one end is handed to an assistant, while the other is pulled tight, and next the other end treated in the same way, and in the same manner it is tied.

MEDICAL PROGRESS.

Antipyrin as a Uterine Sedative.—M. H. Chouppe has already called attention to the good effects of antipyrin in uterine pains after parturition or in dysmenorrhœa. In proof of this he relates the following case: A woman, aged thirty-five, was suffering from a large myoma situated in the posterior wall of the uterus, accompanied by copious hemorrhage, which reappeared after menstruation. Ergot checked the hemorrhage, but caused such severe uterine pains that it had to be discontinued. Large doses of morphine were administered; these caused the pains to disappear, but at the same time the uterine contraction was relaxed and hemorrhage reappeared. Ergot was again administered with similar results. The attacks of uterine pains lasted two or three hours. M. Chouppe then had recourse to antipyrin. An injection, containing thirty grains of antipyrin, was administered. At the end of twenty minutes the pains disappeared. M. Chouppe then tried the following experiment: An injection of antipyrin was given half an hour before the dose of ergot. The patient experienced no pain, although there was active uterine contraction; hemorrhage was arrested. M. Chouppe concludes that antipyrin relieves the pain caused by uterine contraction which is produced by ergot without diminishing the contraction. He believes that it acts upon the spinal cord, and might be administered with advantage during parturition to women of an irritable temperament.—*British Medical Journal*, December 17, 1887.

Tuberculosis in Infants.—Mantel, in *Le Progrès Médical* of December 10, 1887, concludes that tuberculosis in infants, as in adults, may be accompanied by intra- and extra-pulmonary hemorrhage; intra-pulmonary hemorrhage is more rare among infants than adults. Syphilis and engrafted tuberculosis are a frequent cause of hæmoptysis in infants; the peculiarities of their venous system furnishing an anatomical cause; the mechanism of the process is first the alteration in the child's blood, which causes frequent coagulation in the pulmonary arterioles; the destruction of lung tissue by tuberculosis, and the lessening of oxygenation of the blood; the influence of pleuritic adhesions, which frequently occur, and the pressure exercised by enlarged lymphatics in the mediastina, all conduce to thrombosis of the pulmonary artery, producing areas of passive congestion; syphilis weakens the vascular walls, and in these congested areas hemorrhages frequently occur. The lesions disclosed by post-mortem examination in these cases resemble those in the adult; two are especially interesting, one is the impossibility of discovering the exact source of the hemorrhage, and the other the constant presence of blood in the stomach, in various stages of coagulation, distending that viscus, and illustrating the especial mechanism of hæmoptysis among children. Premonitory and latent hemorrhage, dependent on conditions of the blood, occurs frequently; hemorrhage in any considerable amount is generally an indication of a serious and fatal condition.

The prognosis, in cases in which free hemorrhage occurs, is generally very grave; if syphilis can be discovered and promptly treated, either during or after intra-uterine life, much good may be done.

The Diagnosis of Gonorrhœa in Women.—Noeggerath, of Wiesbaden, concludes an article in the *Deutsche medicinische Wochenschrift* of December 8, 1887, with the following points, on which he bases his diagnosis of gonorrhœa:

1. The illness of a healthy woman occurring soon after marriage, although marriage often disturbs a woman's

health, but should not produce evident symptoms of disease.

2. A purulent discharge, in the absence of deep ulceration, granulation, sarcoma, carcinoma, or scanty, glassy-looking secretion, with small, deep red erosion on the os uteri.

3. Catarrh of the exits of the ducts from the vulvo-vaginal glands.

4. Small, pointed condylomata on different portions of the vulva.

5. A circle of such condylomata about the anus.

6. The presence of colpitis granulosa.

7. The existence of salpingo-perimetritis.

8. Ovaritis.

An Elixir of Saccharin.—Martindale, in the *Pharmaceutical Journal*, proposes the following formula:

Saccharin.	24 grains.
Bicarbonate of sodium .	12 grains.
Alcohol	1 fluid-drachm.
Distilled water . . .	7 fluid-drachms.

The solution of the solids is made in water, the alcohol added, and the solution filtered. Twenty minims contain one grain of saccharin, and this is said to be sufficient to flavor a four ounce mixture.—*Pharmaceutical Record*, December, 1887.

Chloride of Drumine.—Dr. Reid, the introducer of this substance to the profession, reports, in the *Australasian Medical Gazette* for October, 1887, his use of drumine as follows:

A short time ago I had occasion to treat a severe case of sciatica. Having had a little drumine chloride on a filter paper I scraped it off, dissolved it in water, and then filtered it. I injected min. x of the solution, and in half an hour ʒj of solution (strength unknown, as the powder was mixed with filter paper, it was weak, but it paralyzed the sense of taste on the tongue). There was soon great relief, and ease of movement replaced the previous stiff back, so that the patient walked easily down stairs in an hour, when the jarring of ordinary walking formerly gave him much pain. No local or other after-effects appeared, although the powdered drug was over six months old.

Myopia in Russia.—The *British Medical Journal* of December 17, 1887, writes that the Russians appear to be as prone to become myopic as their neighbors the Germans. Prof. Adamyuk, of Kasan, has published in the *Westnik Oftalmologie* a series of examinations of the refraction in pupils at a school. Each pupil was kept under careful observation from his entry into the school until his exit thence. The investigations continued for ten years. Amongst 317 first year's scholars, Prof. Adamyuk found that 165, or 52 per cent., were hypermetropic; 106, or 33 per cent., were emmetropic; and 45, or 14 per cent., were myopic. One case has been rejected out of the total 317. In the course of the year the refraction altered very notably. Myopia made progress in 90 per cent., hypermetropia only in 51.6 per cent., whilst 32 per cent. of the pupils who were emmetropic at the beginning of their school career underwent deterioration of their accommodation, generally in the direction of myopia. Apart from the purely ophthalmological aspect of Prof. Adamyuk's researches, it is interesting to note how a branch of the Aryan race, comparatively young to civilization, are already subject to all those psychological and pathological conditions which have generally been considered to be the essential results of political and social decay in older nationalities. Not only does the Russian mind tend to become excited on complicated questions about Divine right, democracy, or systematic anarchy, State churches or dissent, and other questions so familiar to us, the consideration of which has become part of the very nature of Western Europeans and Americans, but the eyes of young Russians appear to be no stronger in resisting the strain of continuous reading than are the eyes of many Westerns whose ancestors may have been able to read for centuries. Questions of hygiene, however, are connected with disorders of accommodation in schools; and, lastly, though older races may include many individuals who are mentally and physically worn out, young races may not be so ready, as a whole, to bear a strain of intellectual education to which they have not been accustomed.

Antipyrin in Sea-sickness.—Dupuy, in the voyage from Havre to Buenos Ayres and return, has given antipyrin to prevent sea-sickness, with the following results: The dose most generally useful was 23 grains, the effect of which was manifest in about ten minutes. More than 45 grains was never found necessary to procure relief in about an hour.

In rare cases, where the drug was vomited, a hypodermatic injection of 15 grains was efficacious.—*Gazette Hebdomadaire*, December 2, 1887.

Treatment of Blepharitis.—Parinaud advises the following:

Hydrarg. oxid. rubri	3 grs.
Plumbi acetat. (crystall.) . . .	1½ grs.
Vaselin.	ʒ 2½.

The lids may be cleansed by the use of warm solutions of sodium bicarbonate, and a little of the ointment applied. —*L'Union Médicale*, November 29, 1887.

Fatal Tonsillar Hemorrhage.—Dr. Hall writes from Colorado to the *Boston Medical and Surgical Journal* of December 22, 1887, reporting the case of a rancher who suffered from severe hemorrhage at intervals, following quinsy. Improvement followed tonic and astringent treatment; a decomposing clot was expelled, and the affected tonsil returned to its normal size. Eleven days later sudden and excessive hemorrhage occurred, proving rapidly fatal. In the absence of a post mortem, Dr. Hall considers the probable cause of death ulceration and rupture of the carotid artery.

Paralysis of the Abdominal Muscles.—At a meeting of the Paris Société de Chirurgie early in October, M. Deprès exhibited a photograph of a woman whom two medical attendants had believed to be subject to ovarian disease. The abdomen was extremely pendulous, and measured forty-eight inches round the umbilical level. On careful examination M. Deprès found that the umbilical muscles were entirely paralyzed. The patient could not rise from her bed without supporting the abdomen with her hands. No contraction of the muscles occurred during movement or coughing, nor under any

form of electrical stimulation. Frequent pregnancies often cause distention, thinning, and consequent weakening of the abdominal muscles, but never paralysis. M. Deprès's patient had been only twice pregnant, and the labors were normal. In the discussion which followed, M. Lannelongue stated that he had seen paralysis of the abdominal muscles in anterior poliomyelitis, but without the symptoms noted in M. Deprès's case. M. Marc Sée believed that the pendulous abdomen was certainly most frequent amongst multiparæ, but had been observed in women who had borne only one child. M. Deprès replied that he had seen numerous cases of pendulous abdomen which simulated ovarian disease, but never, before this example, any instance of paralysis of the abdominal muscles which had caused symptoms mistaken for those observed in cystic tumors of the ovary. The case was certainly of great interest. Pendulous abdomen is a well-known affection; Landau has recently written an able treatise on its nature and treatment, and its due recognition is of importance to physicians and surgeons, as well as to obstetricians. A cursory glance or sweep of the hand over a pendulous abdomen may give rise to a serious error of diagnosis. Ascites, pregnancy, ovarian or uterine tumor may be suspected, especially when the walls are very thick, so as to interfere with resonance on percussion. In cold weather, or when the hand of the observer feels chilly, contractions of the recti are set up, and may give the erroneous impression that some solid growth is present. The support of a belt gives comfort, and to a certain extent cures the affection. Here we may note that Mr. Treves has recently declared that the belt is not advisable after ovariotomy and allied operations, as it interferes with the natural process of recovery which the muscles, weakened by long distention, would undergo if left to support themselves. However, many experienced authorities would dread the abolition of the abdominal belt after abdominal section, for hernia of the cicatrix is not rare; indeed, Dr. Homans, of Boston, discovered that it ultimately developed in ten per cent. of his patients, and those who are as careful about after-histories as Dr. Homans would possibly find their proportions just as high. Thus the question of the means of making the abdominal walls as strong as possible after an operation becomes very important, and the relative merits of Mr. Treves's principles and the usual practice deserve deep consideration. The case of true paralysis of the abdominal muscles described by M. Deprès must not be overlooked, since it is a condition which we may safely say has been frequently confounded with a simple pendulous condition of the abdominal walls.—*British Medical Journal*, Dec. 17, 1887.

Conservative Divulsion of the Cervix Uteri.—In the *St. Louis Medical Review* of December 17, 1887, DR. HULBERT reports elaborate calculations which he has made regarding the physiology of menstruation, and the amount of fluid which is expelled through a normal cervix. He concludes that in dysmenorrhœa from mechanical causes stenosis is infrequent, and that the operation of divulsion is allowable only when confined within the physiological limits of the tissues acted upon.

Mental Affections and Aural Disease.—Sufferers from noises in the ears are sometimes greatly distressed by the tinnitus, and cases of suicide have been ascribed to sheer desperation resulting from an inability to get relief from the everlasting noise. Ménière's disease and some cases of epilepsy are attributed to disease in the ear setting up changes in the central nervous system. The question is still unanswered whether actual mental disease, mania, or melancholy, may not be produced by aural disease, apart from any annoyance due to tinnitus or deafness. Coarse diseases, such as otorrhœa, suppuration in the mastoid cells, perforations of the drum, polypi, waxy concretions, and foreign bodies, are easy of recognition and can be appropriately treated, generally by simple surgical methods. But nervous affections due to irradiation from the obscure aural mischief are not always so open to treatment, because the changes in the ear are more subtle, but none the less real. Sometimes an obstruction of the Eustachian tube may be the chief cause of tinnitus, owing to unpoised atmospheric pressure leading to excitation of the labyrinth and acoustic nerve by actual compression. M. Boucheron believes that, besides vertigo, epilepsy, and other nerve troubles, mental disease may be originated, and simple inflation of the middle ear has been followed by a cure.—*Lancet*, December 17, 1887.

Cancer of the Larynx.—At a recent meeting of the Academy of Medicine of Paris, RUAULT reported the case of a man, sixty-three years old, who suffered from epithelioma on the right lower vocal cord. The symptoms gradually appeared during ten months' time. Laryngoscopic examination established a diagnosis several days after the tumor began to ulcerate. The general condition of the patient was excellent; the growth was circumscribed; there was no glandular swelling. The surgeon decided to perform thyrotomy, and partial laryngectomy if needed. Tracheotomy was first made, but the patient died of pneumonia two days afterward. The autopsy and microscopic examination showed a lobulated, warty carcinoma, exactly limited to the ligamentous portion of the lower vocal cord, of which the anterior and posterior extremities were healthy for a considerable extent. The conclusion reached was that the partial excision, if carried out, would have resulted in cure. Early diagnosis is of the greatest importance, and early operation.—*L'Abeille Médicale*, December 12, 1887.

A Convenient Mixture for Toothache.—From *L'Union Médicale* of December 1, 1887, we take the following:

Ext. opii (alcohol),		
Camphor. pulver.,		
Balsam. Peruvian. . . .	āā	8 grs.
Resin. mastich.		15 "
Chloroform.		3 2½.

A solution to be made; in which a pledget of cotton is to be dipped, and inserted in the tooth.

Acute Thyroiditis.—The thyroid gland may be the seat of an acute inflammatory enlargement running a definite course without suppuration and terminating in perfect recovery. In these clinical characters we find a resemblance to ordinary mumps. Dr. Barlow read a paper on "Acute Enlargement of the Thyroid Gland," at the last meeting of the Clinical Society, and he related the case of a little boy, aged three, in whose thyroid gland an attack of inflammation occurred, which lasted altogether about a fortnight. The child had just previously suffered

from erythema nodosum on the legs, and it was whilst recovering from this affection, and after having been out in the park, that the thyroid enlargement commenced in association with a nasal catarrh, of which the chief symptom was a discharge of thin glairy mucus. Reviewing the literature of the subject, Dr. Barlow arrived at the conclusion that his case must be regarded as coming under the "idiopathic" class of Lucæ, and although there had been erythema nodosum, still the absence of arthritis and heart disease or other genuine rheumatic manifestations formed a warranty for not considering the case as of true rheumatic nature. Some observers, chiefly abroad, have noted a rheumatic swelling of the thyroid having a definite relationship with well-founded rheumatism; and Dr. Angel Money quoted a case of this character from his own experience. Mr. James Berry narrated many interesting particulars concerning acute enlargement of the thyroid gland; and some of these having a fatal ending might tally with cases like the one narrated by Dr. Barlow, in which the enlargement at one time had a threatening aspect. Nevertheless, the definite cycle run by cases of rheumatic and idiopathic descriptions must, we think, be held to differentiate them from ordinary goitre, in which the mode of commencement may be acute, but the course always chronic, and showing recurrent tendencies. The perusal of Dr. Barlow's paper will raise the reflection that the causation of acute thyroid enlargement is as imperfectly known as it is seemingly various.—*Lancet*, December 17, 1887.

A Curious Accident.—Dr. Pringle reports, in the *Edinburgh Medical Journal* for December, 1887, the case of a man, aged twenty-two, who was admitted to the Royal Infirmary, having sustained the following accident: He was employed in a sawmill in the city, and it was his duty to guide the piece of wood which was being sawn. While at his work that morning, a board which had just been cut from a log, from some cause unexplained, came in contact with the teeth of the saw, which was revolving at a rate, at its circumference, of 4000 feet per minute. The end of the board nearest the patient was smashed into splinters, only two of which, however, were torn completely off it; these two struck the patient with tremendous violence just below the nasal bones. The appearance presented by the patient at the time of his admission was a most ghastly and extraordinary one.

From the articulation between the nasal bones and cartilages there was a lacerated wound, at the bottom of which the superior maxilla was exposed, running down to the right angle of the lower jaw, and passing one inch above the angle of the mouth. From just below the nasal bones the two splinters of wood projected, the shorter passed straight back through the nasal cavity, the longer down under the cheek, and projected the skin at the left angle of the lower jaw. The patient was so violent that he had to be put under the influence of chloroform until Mr. Annandale's arrival. The longer of the two splinters was easily removed, but the shorter was wedged as firm as a rock, and to get it out Mr. Annandale had to split the hard palate with a chisel introduced through the wound, and so lever the superior maxillæ apart, and even then it required considerable force to extract it. There was comparatively little hemorrhage. The nasal cavity was plugged with lint and the wound stitched up. His pulse was very feeble and rapid; his respirations forty per minute, and rather difficult. As the soft palate was somewhat swollen, a tent and bronchitis kettle were got up, and an ice-bag applied to his head. At 12 o'clock his breathing suddenly became very labored, and patient cyanotic. Tracheotomy was performed with immediate relief. On passing the finger into the mouth, the soft palate was felt to be so much swollen that it almost entirely obliterated the fauces. At 8 P. M. his breathing had become Cheyne-Stokes in character, and sixty per minute; his pulse so rapid and feeble that it could not be counted. He lingered on and died at 4 A. M. next morning, never having regained consciousness.

Post-mortem.—The turbinated bones, vomer, and right superior maxilla comminuted. The hard palate was transversely fractured, but the mucous membrane not involved. Epiglottis and back of tongue seemed normal; soft palate slightly lacerated. Lungs extremely congested and œdematous, but so altered by putrefactive changes, that it was not possible to say if blood had been inspired. The membranes of the brain injected. The brain had received no injury; there was no fracture of the base of the skull. The longer of the two splinters measured fourteen inches in length, and was half an inch thick, and tapered from a point half an inch by half an inch to the other end, which measured half an inch thick by one inch broad; it had entered to a distance of three inches. The shorter one measured five and a half inches long; its *larger* end, *which was the one which entered*, measured three-quarters by half an inch, and there was only three-quarters of an inch projecting beyond the soft parts, leaving four and three-quarters inches buried in the nasal cavity.

"Arsenic Cancer."—As the mind is naturally caught by the curious and by the threatening, so we cannot avoid alluding to the subject which Mr. Jonathan Hutchinson raised at the last meeting of the Pathological Society. We fear, however, that at present further light is required before our knowledge can be considered satisfactory. Many amongst us having a strong belief in the efficacy of arsenic know well its power to produce disease; but, judged from the discussion at the Pathological Society, some do not appreciate the influence of arsenic on the skin. The skin *par excellence* is the tissue on which arsenic has perhaps its most marked influence; besides improving, it may spoil the complexion, rendering it muddy and unsightly. This latter action is also manifested in all parts of the skin, and may lead to the development of soft corns, not warts, in the palms of the hand and soles of the feet, where a roughened condition also grows up under the influence of this most potent drug. So far Mr. Jonathan Hutchinson goes with safe step on sure ground, but the next move onward toward the belief that arsenic can produce epithelial cancer is less secure. It cannot be said outright that arsenic may be the chief cause of epithelial cancer, but we think the position almost impregnable if it be maintained, as, indeed, Sir James Paget and Mr. Hutchinson strongly held, that arsenic may prove one of the causes of epithelial cancer in certain constitutions. Nevertheless, arsenic will not fall into disrepute, for at the worst it is only when continued for many years in very full doses that the drug is alleged to have so deleterious an action. Such a revelation, if it ever comes, will only make medical practitioners more careful in prescribing arsenic.—*Lancet*, December 17, 1887.

Acute Pulmonary Paresis.—At the last meeting of the Medical Society of London, DR. B. W. RICHARDSON called attention to a class of cases presenting such peculiar features as to warrant, in his opinion, the belief that the symptoms are due to a loss of nerve power, resulting in acute vasomotor paralysis of the vessels in the pulmonary area. Though not common, most practitioners must be able to call to mind cases, diagnosticated as pneumonia, where the patient rapidly dies of asphyxia in spite of all that can be done to check the morbid process. The cases alluded to by Dr. Richardson were mostly in women of a neurotic type. Under the influence of a physical or moral shock, not necessarily of any great intensity, nervous phenomena of a hysterical type manifest themselves, followed by intense prostration of body and mind. In the course of a day or two, examination reveals the advent of pneumonic *râles*, and then, without fever, for the most part without pain, and without many of the characteristic signs and symptoms of ordinary pneumonia, the patient rapidly succumbs. Treatment in every case is utterly without avail. Not less interesting than the observations so carefully narrated, are Dr. Richardson's remarks on the effect of nitrite of amyl in bringing about an identical condition of things in animals submitted to its influence. The pathological phenomena are those which physiology teaches us result from section of the nerves which innervate the lungs; and, on this ground, Dr. Richardson argues that the asphyxial phenomena which terminate the rapid and fatal course of this redoubtable disease are attributable to a sudden suppression of nerve power. It could hardly be anticipated that this addition to medical nomenclature would pass unchallenged; and, while the paper will certainly call attention to a class of cases hitherto very imperfectly understood, his views evidently failed to find acceptance on the grounds put forward in their behalf. It appears certain that, to explain the sudden and violent breaking down which is met with in certain cases of so-called pneumonia, either some influence must have been superadded to the usual processes, or we must look to another category of causes altogether to account for the collapse.

Hypnotic Suggestion in Nicotinism.—At a recent meeting of the French Anti-tobacco Society, DECROIX compared the appetite for tobacco to that for alcohol, and suggested hypnotic suggestion as a remedy. VOISIN also reported cases which had been cured by this means after other remedies had utterly failed.—*L'Abeille Médicale*, December 12, 1887.

Sterility in the Male.—DR. KEHRER, of Heidelberg, has recently published some researches on this obscure subject in a work entitled *Beiträge zur Klinischen und Experimentellen Geburtskunde und Gynäkologie*. To 40 already reported cases of sterile marriages where he had examined the semen, he has added 56 more. In 3.12 per cent. complete impotence was certain; in 30.21 per cent. the semen did not contain spermatozoa (*Azoospermia*); in 11.45 per cent. these organisms were deficient in quantity (*Oligozoospermia*), and in 55.20 per cent. they were present in abundance (*Polyzoospermia*). Amongst the cases of azoospermia, in many instances no cause for the anomaly could be traced; in a fifth masturbation had avowedly been practised; in more than two-thirds the subjects had suffered from gonorrhœa, but disease of one or both testicles could not be detected in many of these patients, so that Dr. Kehrer suspects other complications besides disease of the epididymis, such as obstruction of the ejaculatory duct through prostatitis, or fatty degeneration of the tubuli seminiferi. The proportion of subjects where there had been gonorrhœa was the same in the cases of oligozoospermia, where yet a chance of fruitful coitus remained, whilst amongst the sterile men where polyzoospermia was discovered, only half as many had been subject to gonorrhœa. Dr. Kehrer believes, judging from his researches, that in at least a third of the cases of sterile marriages the husband was the party at fault, and gonorrhœa was the primary cause of the barrenness. Here it must be remembered that, unfortunately, that disease is extremely common amongst young unmarried men, and in making researches in long series of fertile marriages, a large proportion of the husbands would probably be found to have suffered from gonorrhœa. Noegerrath fell into a doubtful line of argument somewhat like that of Dr. Kehrer, and Bumstead, amongst others, exposed the fallacy. Dr. Kehrer believes that other sources of sterility will yet be discovered, such as influences directly prejudicial to the germ-cell or sperm-cell.—*British Medical Journal*, Dec. 17, 1887.

Bacteriology of Smallpox.—PROFESSOR J. HLAVA describes in the *Sbornik Lekarsky*, a Bohemian medical journal, the results of some microscopical and bacteriological researches he has lately made on the contents of variolous pustules and the blood and viscera of smallpox patients. In four out of five cases streptococcus pyogenes was found in the blood and viscera. In the skin and in the pustular contents there were found, in addition, staphylycoccus albus, saccharomyces (Proteus Zenkeri), and staphylococcus citreus cereus. The identity of the microörganisms found with pyogenic microbes was demonstrated experimentally, but none of them produced smallpox. Professor Hlava believes that the variolous poison produces characteristic changes in the epithelium of the skin, and that in consequence of these pyogenic cocci invade the dermis, being carried thither by the circulation, which they enter through abrasions of the surface of the pharynx and larynx, which, he says, are invariably to be met with in smallpox patients. Thus variola would appear to be, in the majority of cases, a disease due to a mixture of infections, variolous and pyogenic, the latter class of infection entering the body subsequently to the former.—*Lancet*, December 17, 1887.

Antipyrin in Hæmoptysis.—In the *Meditzinskoïe Obozreniïe*, No. 5, 1887, p. 520, DR. M. BYVALKEVITCH, of the Vilna Military Hospital, states that antipyrin is an excellent remedy for pulmonary hemorrhage of every kind. The statement is based on ten cases of hæmoptysis in patients suffering from phthisis, bronchiectasis, cardiac disease, and traumatic injury of the chest. The following mixture was invariably employed by Dr. Byvalkevitch: R.—Antipyrini, ℥ss; aq. destil., ℥iv; essentiæ menthæ pip., gtt. xv. M.D.S. A tablespoonful every two or three hours. In none of the cases were more than two doses of the mixture required completely to arrest hæmoptysis, even when the daily loss of blood amounted to two fluid pounds. In some of the patients ordinary hæmostatics, such as ergot, ergotin, digitalis, atropine, and Haller's elixir, had been previously tried without effect.—*British Medical Journal*, December 17, 1887.

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SUPRAPUBIC LITHOTOMY IN MALE CHILDREN.

By far the most noteworthy contribution of the past year to the operative surgery of vesical calculus is that of ASSENDELFT, of Wetoschkino, Russia, who reports, in the *Archiv für klinische Chirurgie*, Bd. xxxvi., Hefte 1 and 2, the details of one hundred and two cases of epicystotomy for stone, with only two deaths, a success which is as wonderful as it is unparalleled. As not less than eighty-one of the subjects were male children, among whom the two deaths were met—one from peritonitis, and the other from purulent bronchitis, their ages having been, respectively, two and four years—we propose to set before our readers an analysis of the results attained by Assendelft, and compare them with those afforded by litholapaxy and lateral lithotomy in the same class of subjects.

The age of 38 patients varied from two to five years inclusive; 27 were between six and ten years inclusive; and 16 ranged between eleven and fifteen inclusive. The hospital in which they were treated was in an excellent sanitary condition. The steps of the operation are as follows: A catheter having been inserted into the bladder, enough of a one-half per cent. carbolic acid solution is thrown into the viscus to render it prominent above the pubes. The Garson-Petersen rectal bag is dispensed with, but the catheter is retained to facilitate the future steps of the operation. The incision in the linea alba is carried from just below the border of the symphysis pubis upward for a distance which varies between an inch and three-quarters and three inches, from one and three-quarters to two inches being, as a rule, sufficient. The prevesical space having been exposed, its fatty tissues are divided until the bladder is reached, care being taken to avoid the veins, or to ligate them should it become necessary. The bladder, previously fixed with tenacula, is opened from above downward with a sharp knife, the incision varying in length from four-fifths of an inch to one inch for small stones, or extending to two and a quarter inches for large concretions. If in this step of the operation the peritoneum should be seen, it is held back by the index finger. Any bleeding from the vessels of the bladder having been arrested, which is not always easily done, the stone is extracted with the finger or the forceps, avoiding, if possible, its fracture, which is liable to provoke hemorrhage from the vesical mucous membrane. The bladder is now washed out with a one-quarter per cent. carbolic solution, and a one-third of an inch drainage tube, or two smaller tubes, passed into its cavity, and fixed by Carlsbad pins. The divided recti muscles, or their sheaths, as well as the skin, are approximated by catgut sutures to the point of exit of the drains. The wound is powdered with iodoform, and covered with iodoform and salicylic gauze, which are properly secured in position, and the patient is placed upon his belly, with the head elevated by a small pillow, a position to which he soon becomes accustomed.

For the first four or five days the dressings are changed from six to eight times in the twenty-four hours. At the end of this time a smaller drain is employed, or if two were inserted originally, one is omitted. As soon as the patient begins to pass urine by the urethra, which happens, on an average, in nine or ten days, drainage is dispensed with, and the patient can lie on his back. Complete cicatrization of the wound occurs, exceptionally, as early as the sixteenth or eighteenth day; but it may be delayed for four or even five months, the average being thirty-seven days.

The peritoneum was seen in the upper angle of the wound in 19, or nearly 24 per cent. of the cases, and it is interesting to note that 76.47 per cent. of the subjects were between two and five years inclusive; 17.64 per cent. were six years of age; and 5.88 per cent. were seven years of age. These observations indicate how slight are the risks of wounding that membrane during the operation; and they tend to confirm the statement of Pitha, that after eight years the peritoneum descends only one or two lines

below the umbilicus. The fact that the bladder is still an abdominal organ up to eighteen years, through which a large surface is uncovered by peritoneum, renders impubic subjects peculiarly fitted for epicystotomy. Hence, the Petersen bag may be dispensed with.

Among the primary risks of the operation, hemorrhage was the most common. In 6 cases there was free bleeding from the arteries of the bladder-wound; in 2 from the mucous membrane of that organ; and in 1 from the prevesical space. In 4 cases there was reactionary hemorrhage. In 3 secondary bleeding was encountered, in 2 of which it was so serious as to necessitate reopening of the wound, and plugging with iodoform gauze. Phlegmonous inflammation of the groin and of the penis, and necrosis of the tissues of the prevesical space were witnessed, each, in 1 case. In 3 cases there was peritonitis, and one of these proved fatal. In not less than 29 of 61 cases in which the details are perfect, the edges of the wound separated, the separation being partial in 6, and complete in 23. This complication may be set to the account of the catgut sutures employed for sewing up the wound. In 9 examples hernia of the mucous membrane of the bladder rendered extraction of the stone difficult. In several of the cases the patients were so ill that they barely escaped with their lives.

As the natural outcome of his wonderful success—the mortality having been only 2.47 per cent.—Assendelft recommends the adoption of suprapubic lithotomy to the exclusion of other procedures: but the success of any operation should not be based upon the practice of a single surgeon. We happen to have notes of 90 additional antiseptic, suprapubic lithotomies in impubic boys. Of these 20 perished—a mortality of 22.22 per cent.—13 from peritonitis, 3 from prevesical phlegmon, 1 from urinary infiltration, 1 from purulent nephritis, while we are unable to state the cause of death in the remaining 2. Of these 90 cases, Schmitz, of St. Petersburg, had 23 with 5 deaths, a mortality of 21.73 per cent. Adding the 90 additional cases to the 81 of Assendelft, 171 cases afforded 22 deaths, or a mortality of 12.86 per cent., which must be regarded as the proper death-rate of antiseptic epicystotomy for calculus in boys.

Better results than those of Assendelft have been attained from other procedures by other operators. Thus, Surgeon-Major Keegan, of Indore, about a year ago published a table of 58 cases of Bigelow's operation in male children whose ages ranged from twenty-one months to fourteen years, with one death, or a mortality of 1.72 per cent. The ages of 46.53 per cent. of his patients varied from less than two to five years inclusive; 41.37 per cent. were between six and ten years inclusive; and 12.07 per cent. ranged between eleven and fourteen inclusive. For the same period Assendelft's cases showed, respectively, 46.49, 33.33, and 19.75 per cent. In Keegan's cases the stone weighed less than fifty grains in 46.42 per cent., between fifty and a hundred grains in 16.07 per cent., up to two hundred grains in 19.64 per cent., and above two hundred grains in 17.87 per cent. In Assendelft's cases the same weights are represented by 38.27, 17.29, 22.22, and 22.22 per cent. Hence, Keegan crushed more subjects of tender years than Assendelft cut, although the stones in the cases of the latter were, as a rule, more bulky.

Turning from litholapaxy to lateral lithotomy, still more satisfactory results than those of Assendelft's are shown by Freyer, who cut 165 boys without a single death, and by the surgeons of the Children's Hospital of Moscow, whose last 72 cases, according to Werewkin, were all successful and yet there is no more reason for recommending the exclusive adoption of lateral lithotomy in boys than there is for the exclusive resort to epicystotomy or rapid lithotrity. As yet the last operation has not been sufficiently tried, so that a comparison can only be drawn between the first two procedures as practised in late years. As we have already seen, antiseptic suprapubic lithotomy is attended with a mortality of 12.86 per cent., and requires thirty-seven days for the healing of the wound. Freyer's 165 cases of lateral lithotomy, all successful; Ramnarain Dass's 87 cases, with 3 deaths: S. D. Gross's 72 cases, with 2 deaths; Rosenthal's 203 cases, with 13 deaths; Kovac's 57 cases, with 3 deaths; Post's 106 cases, with 2 deaths; and 147 cases, with 9 deaths, in the Children's Hospital of Moscow, afford 837 cases, with 32 deaths, or a mortality of 3.82 per cent. Add to this seventeen days for healing of the wound, and the advantages are all on the side of the perineal operation.

If the surgeon were forced to limit himself to one procedure, he should choose lateral lithotomy; but the wise operator will select his cases, reserving epicystotomy for large calculi and encysted calculi. The latter method is being carried to an unwarrantable extreme by German and French surgeons. We daily read cases in which it is practised for stones which weigh eight, ten, fifteen, or twenty grains, and

which could have been safely crushed or removed through the perineum, instead of subjecting the patient to greater risks and to a more prolonged confinement.

In conclusion, we may be allowed to express the opinion that, in the present state of our knowledge, a stone in a boy should be removed by the lateral method, with the reservation that after the age of seven, if the concretion be of moderate dimensions, the median will be the safer procedure; while a large calculus at any age will call for the high operation. Should the last of these methods be selected in view of its comparative success in children, suture of the bladder should be practised, and a drain retained in the prevesical space. If the vesical wound should reopen, nothing will have been lost; should it remain closed, the subsequent treatment will be greatly shortened, and the patient will be spared the inconvenience of lying on his belly. In point of fact, if there be no cystitis, and the urine be clear, suturing the bladder will, as a rule, be attended with primary union. It ought also to be added that the superficial wound should be approximated down to the drain with the continuous silk aseptic suture, to guard against its reopening, as happened so frequently after the use of catgut in the cases recorded by Assendelft.

FREE HYDROCHLORIC ACID IN THE STOMACH.

The diagnostic importance of testing the stomach contents for free hydrochloric acid, to which attention was called in The Medical News of August 20, 1887, is beginning to be recognized, as is evidenced by its recent employment in some of our hospitals, and it may be useful for us now to point to certain sources of error that may vitiate the results thus obtained, and also to state that Dr. Alfred Günzburg, of Frankfort-on-the-Main, has recently discovered another test, which is claimed to be free from some of the objections of which we previously hinted. As an instance of the latter, gentian-violet, which is, perhaps, the best of the substances hitherto used to detect free hydrochloric acid in the gastric juice, gives the same reactions when the organic acids, especially lactic, are present in large amount. The same is true of tropæolin and Congo red; hence obvious sources of error.

The test about to be described is based on the discovery by Wiesner that pine wood dipped in a solution of phloroglucin, and then moistened with concentrated hydrochloric acid, is colored a dark red. Max Singer ascertained that the substance in the wood which, when in contact with phloroglucin and hydrochloric acid, strikes a red color, is vanillin. The reaction was studied more minutely by Etti, who found that pyrogallol, in the presence of vanillin and hydrochloric acid, behaved much in the same way as phloroglucin.

For the sake of convenience, Günzburg selected phloroglucin for his test, which is as follows: Thirty grains of phloroglucin and fifteen grains of Merck's vanillin in about an ounce of absolute alcohol, make a yellowish-red solution. A trace of concentrated mineral acid added to this solution produces a bright red color, and, at the same time, there takes place a separation of beautiful red crystals. Concentrated organic acids (lactic and acetic), either alone or mingled with chlorides, give no such reaction. The mineral acid to which the reaction is due must be concentrated. If diluted, the color does not appear until some of the fluid is driven away by heat, when the red crystals appear. *Boiling must be carefully avoided.*

The following is the technique for application to the examination of the stomach contents: A few drops of the filtrate of the latter are mingled in a porcelain dish with the same quantity of phloroglucin-vanillin solution, and carefully heated. According to Günzburg, the reaction will take place invariably if one-tenth of one per cent. of free hydrochloric acid be present, a delicacy at least equal to that of the aniline solutions. If but one-twentieth of one per cent. of the acid be present, the reaction occurs in the form of red streaks, and below this degree it ceases altogether. Günzburg is of the opinion that a quantitative estimate of the amount of hydrochloric acid may be made in accordance with the intensity of the reaction, but it is doubtful whether any near approach to accuracy could thus be obtained.

THE DIURETIC INFLUENCE OF STROPHANTHUS.

So much has appeared in the journals during the last few months concerning strophanthus and its effects on the heart, that its action on the rest of the system has been overlooked. In the *Gazette Hebdomadaire* of December 9, 1887, Mairet and Combemale give us the result of their studies on its action on the secretion of urine and the elimination of urea. They found that the quantity of urine was considerably increased, and that the urea, while not always altered in amount, was generally increased.

This occurred when the drug was used by the stomach or hypodermatically. As to its action on the kidney they found that it increases the urinary flow both by mechanical pressure, due to greater arterial tension, and also by a direct stimulation of the secreting structure of the kidney.

Both of these investigators believe that cumulative effects do not occur after the prolonged use of strophanthus, but until the drug has been more widely used we doubt whether this statement can be received as proven. So little is known as to the renal effects of the drug that it is possible that it may be too irritating to use constantly in case of kidney lesions, particularly of an acute and active type, and all the evidence points to its use in cardiac lesions rather than those of the renal tissues.

RECOVERY IN CIRRHOSIS OF THE LIVER.

IN THE MEDICAL NEWS of September 18, 1886, we referred to a discussion which had taken place at one of the Paris societies on the subject of the curability of cirrhosis of the liver, and the case recently reported in THE MEDICAL NEWS, by DR. MACDONNELL in the proceedings of the Montreal Medico-Chirurgical Society, illustrates a point in practice which is too frequently overlooked. It is still customary with many physicians to defer tapping in hydroperitoneum until diuretics and cathartics have been thoroughly tried, and the trocar is resorted to only when the distention has become extreme. The late DR. FLINT was, we believe, the first to advocate early and repeated tapping in this condition, and in his work on clinical medicine he refers to several cases in which in years no reaccumulation of fluid took place. Dr. Macdonnell's patient was tapped sixty times within a year, and after about 9000 ounces of fluid had been removed no reaccumulation occurred, and the woman apparently got well. Continuous drainage has also been practised with good results.

The factor which determines the onset of dropsy in cirrhosis of the liver is not always clear. The highest possible grade of portal obstruction, even obliteration of the vena portæ, may exist without it, and a rich development of anastomosing vessels may compensate fully the destruction of branches within the liver. At least one-third of all cases of the ordinary atrophic cirrhosis are met with accidentally on the post-mortem table in persons dead of other affections. So long as an active collateral circulation is maintained there may be no symptoms. When we consider the extraordinary capacity of the abdominal vessels and the variations in blood supply to which they are liable, we can readily understand that conditions of distention of the portal radicles might arise with which the collateral circulation could not cope; and a sudden hematemesis or the development of ascites would represent a failure in a compensation hitherto effective. It is possible, as some writers have suggested, that owing to changes in the serous layer the capillaries are rendered more permeable and without any increase in the blood pressure permit of the transudation.

The practical point is this, that in certain cases of cirrhosis the effusion results from changes which are not necessarily permanent, and we should not regard the onset of dropsy in every case as the beginning of the end. Clinical records point to early and frequent tapping as the very best measure in ascites, not only as affording immediate relief to unpleasant or urgent symptoms, but as holding out a prospect in some cases of the removal of the conditions on which it depends.

THE South Carolina Medical Society celebrated its ninety-eighth anniversary on the evening of December 12th. As is the custom, new officers were elected as follows:

President, Dr. Manning Simons; *Vice-president*, Dr. T. Grange Simons; *Treasurer*, Dr. John L. Dawson, Jr.; *Secretary*, Dr. Charles W. Kollock. After the meeting, a handsome supper was served at the Charleston Hotel.

This is not the State Society as its name might indicate, but is the County Medical Society.

The new Charleston City Hospital is rapidly nearing completion, and the site chosen on the banks of the Ashley is in every way desirable.

THE New York Academy of Medicine has received another accession to its library of five thousand volumes by the gift of the late Dr. Middleton Goldsmith, formerly of New York and Louisville, but latterly of Rutland, Vermont, where he died in November last. Dr. Goldsmith's name will be recalled by many in connection with his plan of treatment of hospital gangrene by bromine; he was also an early advocate for the pavilion hospital during the late war. His gift of books was made shortly before his death, through his old friend, Dr. John C. Peters, of New York. So many of these newly acquired books as are already in the reference department of the Academy library will be placed in its circulating branch.

The Crown Prince is said to be improving in respect of the diminution in size of the laryngeal growths; but, inasmuch as the damp weather at San Remo has compelled him to remain indoors so much of the time, it is probable that he will go to Cairo for the remainder of the winter.

From Berlin, we learn that Prof. Virchow is making a careful study of all the pathological specimens within his reach, for the purpose of discovering if there has ever existed a case in which a benign growth and a cancerous one have grown up side by side. He has as yet found no instance of that nature; and, inasmuch as he has never found any malignant characteristics in the three specimens from the Prince removed by Mackenzie, he infers that the new formations, of which no microscopic examination has been made, are likewise non-malignant.

REVIEWS.

A Manual of Medical Jurisprudence, for the Use of Students at Law and of Medicine. By Marshall D. Ewell, M.D., LL.D., Professor of Common Law in Union College of Law, Chicago, Ill. 12mo. pp. 409. Boston: Little, Brown & Co., 1887.

A somewhat careful perusal of this little work has left a very favorable impression of its general soundness, and of its adaptation to the wants of the busy student and practitioner, both of law and medicine.

The author, in his preface, modestly disclaims for it anything more than a "careful compilation of what seemed to be the best authorities of the leading principles of the science." He has certainly shown a diligent and careful study of these leading authorities; especially appealing to Drs. Tidy, Ogston, and Spitzka—the latter being his chief authority on insanity.

The limits of his volume preclude any allusion to *special* Toxicology, but his observations on Poisoning in general are sufficiently plain and practical; and, although necessarily much condensed, they embrace what is really essential to the general student.

One criticism we would offer in relation to the *guaiacum-test* for blood. The author, after correctly stating the method of applying this test, reminds the reader that many other substances besides blood will produce a blue discoloration with guaiacum. This statement, while true, is slightly obscure, and might lead to an erroneous impression: the fact being, that whilst all these other substances do occasion the blueing of the guaiacum, blood will *not* change its color immediately, when used alone, *but only on the addition of hydrogen peroxide.*

The author, in common with most authorities, is of the opinion that it is impossible to distinguish the human blood-corpuscles from those of the lower mammalia; and while quoting the late Prof. Joseph G. Richardson's microscopic researches on this subject, he omits to mention his very positive assurances and proofs of being able, by the use of very high powers to discriminate with great certainty between human blood and that of the more common domestic animals with which it would be most likely to be confounded in a murder case, viz., the sheep, cow, horse, goat and hog. This fact is certainly worthy of consideration by the medical jurist, and its accuracy has been verified by the present writer.

SOCIETY PROCEEDINGS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, December 28, 1887.

The President, J. Solis-Cohen, M.D., in the Chair.

Dr. Howard A. Kelly read a paper on

THE REMOVAL OF THE UTERINE APPENDAGES FOR DISEASE IN WHICH PAIN IS A PROMINENT SYMPTOM.

(See page 36.)

Dr. John C. DaCosta believed that many unnecessary operations are done, and that it is better practice to cure a woman and leave her with her organs intact, rather than by a brilliant operation to unsex her, without the certainty and with only the hope of relief. He took decided ground against the great number of abdominal sections now being made, including those made for "pain alone." He held that a large proportion of the operations as done, and for the reasons alleged for operating, are unjustifiable; that the published reports of many cases said to be cured by operation are unreliable. For though the operator may have been honest in thinking when he made his report that he had cured his patient—the after-history of the case sometimes showed failure. That the spaying of women for pain alone, and for many of the other supposed causes of trouble for which it is done, and in the miscellaneous way in which it is done, he believed is unwarranted.

Dr. W. H. Parish said that recent experience and literature are teeming with abundant evidence that diseases of the appendages, and more especially of the tubes, are of really the greatest frequency. Most usually the affection is inflammatory in character, and dependent upon catarrh, gonorrhœa, or sepsis. At the time when removal of the appendages is justifiable, sterility has been already established by the disease itself, and such treatment as will obviate that stage of progress of the disease which indicates surgical interference, will also tend to lessen the probability of the establishment of sterility. What is to-day a mild inflammation of an appendage, is liable—it may be very quickly—to become a condition even threatening life, and he is confident that some of the measures to-day directed by many against associated vaginal or uterine inflammation, do frequently aggravate greatly a latent and subsiding salpingitis and ovaritis. Too irritating an application to a gonorrhœal endometrium will certainly convert a quiescent inflammation of the tubes into a pus-forming salpingitis. The same is true in reference to applications made in other forms of endometritis. Gonorrhœa is the most important cause of dangerous salpingitis. The German writers pronounce the catarrhal form of most frequent occurrence, but they find this form most common in prostitutes, and we are most likely to assume, and correctly, that the disease in the prostitute is of gonorrhœal origin.

Hemato-salpinx often endangers life, inasmuch as rupture of a tube containing such altered blood as is found in that affection may originate fatal peritonitis. Now one of the causes of hemato-salpinx is stenosis by narrowing or by flexion of the cervical canal—securing the patulency of that canal may permit the tube to empty itself gradually into the uterus, just as it does after opening up the vagina or uterus in hematomatra or hematocolpus. The inflammatory cases of tubal and ovarian disease are divisible into three groups: one of mild character, on which probably no one would operate for removal; another group, in which the accumulation of pus is so large, and the symptoms so grave that, probably, all operators would agree as to the necessity for removal; and then there is an intermediate group, in which surgical opinion would be at variance as to the propriety of removal. In this group the tubes and ovaries are in a condition of more or less subacute or chronic inflammation, with extensive adhesions, and probably some cystic degeneration. Physical examination does not always in these cases clear up the indications. The environments of the patient, the symptoms and the progress of the case after prolonged judicious treatment, must as yet decide the question.

When, after removal of the inflamed appendages, the relief is not complete, or it may be there is no relief, the explanation is to be looked for often in the incomplete character of the removal—a portion of the tube, especially the uterine portion, or a portion of the ovary has been left, and this becomes the focus of other trouble.

DR. E. L. DUER said that Dr. Kelly has emphasized for us the advantage of the educated touch. Dr. Coe, of the Woman's Hospital, of New York, states that but one-fifth of the ovaries removed are diseased. Pain is such a prominent symptom that it can hardly be called a neurotic manifestation. It is often due to adhesions or to pressure, excepting in cases of gonorrhœal origin, or pus-containing tubes. This question has resolved itself into one of environment. The poor woman who must keep up and at her work, has no relief but by the knife. The rich woman who can be cared for with rest and favorable surroundings, may be relieved, sometimes, for example, by the patient and persistent stretching of adhesions and restoring the circulation of surrounding parts.

DR. SINKLER said that the operation of removal of the ovaries is of great interest to neurologists, because many of the cases of hysteria and nervous prostration which came under their care, are connected with pelvic pain or dysmenorrhœa. Besides Charcot's observations in hystero-epilepsy, relieving the paroxysm by pressure over the ovaries would seem to indicate that in such cases a cure might be expected from removal of the ovaries. The result of the operation, however, although satisfactory in some, is disappointing in a great many cases of this character. He had under his care quite a number of patients in whom the ovaries had been removed for hysteria, neurasthenia, pelvic neuralgias, etc. One case, about twenty-three years of age, an extreme case of hysteria and a persistent masturbator, was under his charge at the Orthopœdic Hospital and Infirmary for Nervous Diseases. After seven months, being unimproved in every respect, she was discharged, and was taken by her friends to another hospital, where her ovaries were removed. After a few months she again came under his care, and he found her in as bad a condition as ever. The hysteria was as marked and she masturbated very often. She did not improve in his hands, and he had recently heard of her after an interval of nearly three years, in a worse state than ever before.

Another case is a lady of forty-two years, who, three years ago, had the ovaries removed for dysmenorrhœa, pelvic distress, and general neurasthenia. After a course of rest treatment she has improved greatly; but it is an interesting fact that she still has attacks in which she says there is a sensation of uterine contraction and pressure, just as there was before the operation.

In conclusion, while he would hesitate to recommend removal of the ovaries for the relief of pelvic pain alone, he did not question that there are many cases of hystero-epilepsy and extreme neurasthenia dependent upon violent and prolonged dysmenorrhœa or ovarian pain, in which the operation is not only justifiable, but is decidedly indicated.

DR. CHAS. K. MILLS said that the ground taken by Dr. Kelly can scarcely be attacked if, as he understood him, operation should be only undertaken in the first place, when local disease can be clearly made out, and, in the second place, such disease can nearly always be recognized by proper methods of examination. Certainly, however, in very many cases of pelvic pain, no disease of the ovaries, tubes, or uterus can be recognized, or, indeed, is present. We have true neuralgias of these organs as we may have of any viscus. Before too much significance be given to the ovaralgia of Charcot, it should be recalled that even in male hysteria, pain in one or the other iliac region has been met with in a number of reported cases. As to the view expressed that operation is sometimes called for when hystero-epileptic and other morbid phenomena are exhibited at or near the menstrual period, we should hesitate in accepting this dictum. All nervous symptoms are likely to be aggravated or excited in neurotic women at the menstrual period. In the *American System of Practical Medicine* he had reported two cases of hystero-epilepsy in which the operation of oöphorectomy was performed. In one of these cases clitoridectomy was also performed. The hystero-epilepsy was not cured in either case. His conclusions are given in this work as follows: "With reference to oöphorectomy for hystero-epilepsy or any form of grave hysteria it may be concluded: 1. It is only rarely justifiable; 2. It is not justifiable in the case of girls who have not menstruated; 3. When disease of the ovaries can be clearly made out by local objective signs, it is sometimes justifiable; 4. It is justifiable in some cases with violent nymphomania; 5. The operation is frequently performed without due consideration, and the statistics of the operation are peculiarly unreliable."

We have few reliable statistics with reference to the performance of pelvic operations for the relief of insanity. In these days, when operations are talked about in every house and almost on every corner, cases of ovarian monomania are likely to be met, cases in which women are determined to be operated upon whether or not; some of these cases are undoubtedly like those of sexual hypochondria or monomania in man, in some of which self-castration is performed. In the wards of the Insane Department of the Philadelphia Hospital is now a patient who has removed both testicles by successive operations, under the influence of such a monomania. Operation upon the ovaries or tubes, or both, in cases of insanity should be restricted to those cases in which either local disease of long standing can be made out, or in which

the outbreak of insanity can be clearly traced to disease or impaired function of these organs.

DR. KELLY said that the cases cited by Dr. Sinkler and Dr. Mills had a direct bearing upon his remarks, and show how important it is that the gynecologist should frequently seek the counsel of the neurologist. Extensive follicular degeneration of the ovaries never *per se*, requires operation, but this is often made necessary by the associated symptoms. All his cases have been benefited; while several continue to suffer from pelvic pain, they are entirely freed from the menstrual exacerbations; most have been raised up from chronic invalidism to perfect health, one attaining this not earlier than a year after the operation. In a case of epilepsy with most marked menstrual exacerbations and severe ovarian pain, the epileptic attacks continue, but she is free from pain, and Dr. Kerlin, under whose charge she now is, considers her improved.

DR. W. W. KEEN reported a

SUCCESSFUL CYSTOTOMY AFTER FAILURE OF SUCTION TO REMOVE A PIECE OF A CATHETER FROM THE BLADDER.

The recent suggestion of Dr. De Forest Willard (THE MEDICAL NEWS, November 26, 1887) and Reginald Harrison (*Lancet*, Oct. 29, 1887), to extract foreign bodies from the bladder by the rubber bulb and evacuator of Bigelow's litholapaxy instrument, makes a valuable addition to our surgical resources in these troublesome cases, and is his especial reason for bringing to your attention the following case. The failure of the method in this particular instance was due to special reasons.

J. W., a healthy man, aged seventy-five years, living in Elkton, Md., had suffered for a considerable time with recurring retention of urine, and cystitis following an enlarged prostate. Dr. Charles M. Ellis, his attending surgeon, very wisely taught him the use of the catheter, which he has employed daily for some months. The Nélaton catheter (No. 22 French), which he has employed, having lost its rigidity, he whittled a pine stick to the necessary size, and sought, by means of this, to introduce it into the bladder, November 7, 1887. In the attempt the catheter broke, and a piece, subsequently ascertained to be 4½ inches long, broke off and passed into the bladder. Severe pain and retention followed immediately, and persisted until after he operated upon him.

Three days after the accident he made repeated unsuccessful efforts at extraction with forceps and lithotrites but was not even able to detect the fragment.

On November 11th and 13th he attempted to remove it by suction with Bigelow's evacuator. On the last occasion Dr. Willard kindly helped him personally. They repeatedly filled the bladder with warm boiled water, being careful to keep the extremity of the evacuating tube just at the vesical extremity of the urethra, but suction had no effect in engaging the fragment. This was amply explained later by finding that it lay crosswise, and was so long that both ends were held fixed by the walls of the bladder, while the relative rigidity of the short fragment prevented any possibility of its being brought to the opening of the evacuating tube, though they sought for it through the tube by Dr. Willard's forceps. An evacuating tube with a lateral eye gave no better results than one with an opening at the end. He also used a rectal bulb filled with seven ounces of warm water, but all to no purpose.

After debating between suprapubic and lateral cystotomy, he decided upon the latter, in consequence of the observation of Harrison and others, that the prostate sometimes shrinks after perineal cystotomy, when a tube is retained in place for some time. Accordingly he did left lateral cystotomy with a staff. With the ordinary lithotomy forceps he easily seized the fragment by the middle, removed it, and introduced a rubber drainage tube with a flange, by which it was easily retained in place by tapes. The patient's temperature never rose above 99°, and in six days he went home, with instructions to retain the tube in place for two months, and then to remove it and allow the opening to heal. By this means he hoped to be able to avoid the necessity for the subsequent daily use of the catheter.

December 5th, after nearly five weeks retention of the drainage tube in the bladder he found that, owing to his feebleness, want of care and cleanliness, the tube was proving a source of irritation and slight suppuration. Accordingly, December 10th, he removed the tube. In three days the wound closed sufficiently to cause him to void his urine by the urethra, and he was no longer obliged to rise at night to relieve the bladder. The prostate has shrunk to some extent, so that he no longer needs to use a catheter. Whether this will be permanent, or is only temporary, time alone will determine.

NEW YORK COUNTY MEDICAL ASSOCIATION.

Stated Meeting, December 19, 1887.

THE PRESIDENT, JOHN SHRADY, M.D., IN THE CHAIR.

DR. J. LEWIS SMITH read a paper on

PRESENT OPINIONS REGARDING THE PATHOLOGY AND TREATMENT OF DIPHTHERIA.

No disease in modern times, he said, has attracted more attention than diphtheria, since it is highly contagious and very fatal, is permanently established in many of the larger cities in both hemispheres, and occurs every year epidemically in numerous rural localities. The results of the investigations in regard to the etiology of the disease have tended to establish its microbic origin, but the microbe which is the specific principle of diphtheria is not clearly ascertained. Loeffler, one of the most prominent authorities on the subject, found that every diphtheritic patch contained many species of bacteria, which have been cultivated; but, as they have not been isolated, the specific germ of the disease has not been determined. Another microbe, obtained by Loeffler, and described by Klebs in 1883, merits special attention. In some typical cases of diphtheria, it is true, Loeffler has been unable to find the bacillus, but he suggested that it might possibly have died and been eliminated before death of the patient. The bacilli were found in the exudate in thirteen cases of diphtheria, and cultures to the twenty-fifth generation inoculated in guinea-pigs and birds produced a whitish exudation at the point of inoculation. The researches of Loeffler and Cheyne lend support to the views expressed by Wood and Formad in their able report made to the United States Board of Health in 1882, who arrived at the conclusion

that the two organisms *micrococcus opticus* and *micrococcus diphtheriticus* are specifically one, and that "diphtheria is a septic sore throat, or is simply what was called a century ago putrid sore throat, with or without a secondary constitutional septicæmia."

That the bacillus, said Dr. Smith, is, therefore, the causative agent of diphtheria is rendered probable, and that systemic infection by the diphtheritic poison is not produced directly by the entrance of the microbe into the circulation, but by ptomaines which have sprung into existence through the agency of the microbe, is also the opinion of some of the highest authorities in bacteriology. It is seen that the investigations referred to lend support to the theory that diphtheria is primarily a local malady, and that in certain mild cases it never becomes constitutional, or is constitutional in a very feeble degree. Nevertheless, those who believed that diphtheria was previously constitutional based their opinions on facts that lent strong support to their theory, such as the incubation period of six or seven days in certain cases, the early occurrence of nephritis, even in twenty-four hours in malignant cases, and the existence of very severe and often fatal nephritis in certain cases where the disease of the mucous membrane had been so trivial as to be scarcely appreciable. The mooted subject, whether diphtheria is primarily local, or is primarily constitutional with local manifestations, or whether its nature in this respect varies in different instances, must, therefore, be considered as still undetermined.

As to the propagation of diphtheria the statistics of Professor C. W. Earle, of Chicago, showed that the disease is as severe and fatal in salubrious localities in the newly settled and mountainous States and territories of the Northwest, where it happened to be introduced, as in the foul air of large cities; though dampness and decomposing animal and vegetable substances in rural localities, as in cities, increase the prevalence of the disease. His statistics also showed that diphtheria may be communicated long distances by railways, and probably by merchandise, and they demonstrate its extreme contagiousness from person to person. In the cities there is abundant and melancholy proof of the causative relation of foul air, whether arising from the sewers or stagnant filth, to diphtheria, and Dr. Sternberg, in his recent valuable Lomb Prize Essay, had stated the opinion (which seemed to be borne out by observations relating to the etiology of diphtheria), that the diphtheritic germ, once deposited in damp and foul places, is probably propagated independently of the sick. Thus, in New York City prior to 1850, although foul sewers and insanitary conditions existed, there was no diphtheria; but in the decade following 1850 diphtheria was introduced, its germ made its way into the sewers, where in the filth underground it found a nidus for its propagation, and now wherever sewer gas escapes into the domiciles of this city it is laden with the germs of this disease. The amazing vitality and power of propagation of the diphtheritic germ are apparent when we reflect that it has permanently infected the filthy flowing currents of the sewers in every part of a great city, sewers which, in their ramifications, extend hundreds of miles. It is simply by exposure of children to the sewer gas, carrying with it the diphtheritic germ, which emanates from this widely extending underground culture-bed, and to walking cases of diphtheria, so mild that there is little or no complaint of the throat, or impairment of the general health, that the disease is so prevalent. In Dr. Smith's opinion the germ of diphtheria is of such a nature, and quickly becomes so established in a sewered city, that it can never be "stamped out," as cholera or yellow fever may be, by the active measures of health boards or by legislative enactments, although they may do much in the way of protection.

Having referred in detail to the differential diagnosis of diphtheria, and urged the advisability of enforcing the same precautionary measures in all doubtful cases, as in undoubted diphtheritic disease, Dr. Smith spoke of the area of contagiousness in diphtheria. Dr. Lancry, he said, had cited cases to show that this area is small, being limited to a few feet. Dumas stated that in a school the boys and girls in the same hall were separated by an open space a few yards wide. Diphtheria prevailed among the girls, but did not affect the boys. Other instances were also cited showing that the area of contagiousness, like that of scarlet fever, is within narrow limits, and is, therefore, unlike that of pertussis and measles. The latter diseases, when they enter a domicile or asylum usually affect all the unprotected children. Dr. A. V. Meigs, of Philadelphia, in his interesting paper published last year, on the mode of propagation of the common infectious diseases of childhood, placed diphtheria with scarlet fever and typhoid fever in one group. Diseases in this group, he said, seem to be more under endemic or local influence than are measles and pertussis; not spreading over wide communities, like the latter, and hence, by strict quarantine and preventive measures, their wide extension is more easily prevented. Those who have carefully studied the infectious diseases in children's institutions and elsewhere, will recognize the truthfulness of this distinction.

In speaking of the preventive treatment of diphtheria, Dr. Smith said that Dumas had recommended iodine as a prophylactic; giving to exposed children, in the course of twenty-four hours, a four ounce mixture, containing 8 drops of tincture of iodine and 10 centigrammes (1.34 grains) of iodide of potassium. The most effective method of preventing diphtheria, however, is the isolation and disinfection of the patients, and the disinfection of the apartments, in addition to preventing the inhalation of noxious gases wherever an outbreak of the disease has occurred. Dr. H. B. Baker, of Lansing, Michigan, has published statistics showing that in 102 attacks of diphtheria, the average number of cases where disinfection and isolation (either one or both) were neglected, was 16, and the average of deaths 3.23; while in 116 outbreaks, in which isolation and disinfection were enforced, the average number of cases per outbreak was 2.86, and of deaths 0.66. These precautionary measures, therefore, prevented 13 cases and 2.57 deaths for each outbreak; or, in the total, 1545 cases and 298 deaths in the year. Dr. Smith alluded incidentally to the possible communication of diphtheria to man from animals, stating that recent investigations go to show that it may be thus communicated from poultry, and especially from pigeons; while birds, both wild and tame, are subject to the disease.

Treatment.—The proper treatment of diphtheria is far from being determined, and a chief reason why there is such a difference of opinion in regard to the value of remedies, is because the disease varies greatly in severity in different localities and at different times. In some epidemics a larger majority recover, whatever the treat-

ment (and even with injurious treatment), while in others a large proportion perish under the best possible remedial measures; so that statistics are misleading as to the value of therapeutic agents. In the year 1882 Dr. Lunin met with the following results from different remedies employed at the hospital of Oldenberg. In the fibrinous form of the disease, the percentage of deaths under the various modes of treatment was as follows:

By turpentine	8.30 per cent.
" resorcin	20.06 "
" bichloride of mercury	30.20 "
" chinoline	31.60 "
" tincture of chloride of iron	32.60 "
" bromine	46.70 "

In the septic form the deaths were as follows:

By tincture of chloride of iron	76.5 per cent.
" turpentine	81.0 "
" bromine	88.9 "
" resorcin	89.5 "
" bichloride of mercury	92.9 "
" chinoline	100.0 "

According to Lunin's observations, therefore, in the fibrinous form, turpentine was the most useful therapeutic agent; but in the phlegmonous and septic form the chloride of iron was the most efficient. The cases of fibrinous diphtheria numbered 142, with 43 deaths; of the phlegmonous and septic form, 122 cases, with 103 deaths. In all the cases treated in the Oldenberg Hospital, aggregating 296, 164 were fatal.

After having spoken of the value of tincture of chloride of iron, as advocated by various writers, Dr. Smith took up the consideration of bichloride of mercury, which he said is at the present time regarded by many physicians as the most efficient agent in the treatment of diphtheria. It is the most active and certain of the germicides employed in medicine, whether used locally or internally, and its use in diphtheria rests upon the fact that it quickly destroys all microörganisms with which it comes in contact, and upon the supposition that in safe medicinal doses it penetrates all parts of the system. Among the other authorities quoted concerning its use was Welcher, who recommended as a gargle or spray a solution of the bichloride, one part to one thousand. It was evident, however, Dr. Smith thought, from the experience of other physicians, that when this agent is employed as a spray in so strong a solution as this, it should be used with very great caution; and this is all the more necessary, of course, when the remedy is at the same time being given internally. Dr. E. N. Oatman, of Nyack, N. Y., had reported that he lost but one patient in twenty-three by the following local treatment: Cotton is firmly wound around the end of a stick about the size of an ordinary lead-pencil; being drawn out as it is wound, and made to project beyond the end. This is dipped into a solution of bichloride of mercury, two grains to the pint (1 : 3840), and "passed into the throat until it touches the posterior wall of the pharynx. It is then instantly withdrawn and burnt." This treatment is repeated hourly, with a new swab each time, until the inflammation begins to subside—usually in forty-eight hours. Dr. Smith thought that the quantity of bichloride which could be safely given in twenty-four hours to children of various ages, is about as follows:

To a child 2 years old.	1/6 grain.
" " 4 "	1/4 "
" " 6 "	1/3 "
" " 10 "	1/2 "

Turpentine has been highly recommended recently by physicians of experience for its prompt action, when used locally as well as internally, in arresting the formation and extension of the pseudo-membrane, and as an antidote to the diphtheritic virus. Dr. Lewentaner had reported that an infant of two years, treated by other remedies, began to have symptoms indicating invasion of the larynx on the fourth day. Tracheotomy was resolved upon; but previous trial was made of pure turpentine in a teaspoonful dose. The result was that the croupiness ceased, the other symptoms improved, and the child recovered without tracheotomy. Delthil, by the alleged success of his fumigation treatment, appeared to be the first to draw attention to the use of turpentine in this disease. His treatment was as follows: A mixture of one kilogramme (2 pounds) of coal tar, 8 tablespoonfuls of turpentine, 8 grammes (2 drachms) of resin of benzoin, and 100 grammes (3½ ounces) of cajaput oil; or a mixture of 200 grammes (7 ounces) of coal tar, 80 grammes (2 ozs. 6 drs.) of turpentine; or, turpentine alone, was constantly burnt in the sick-room. The vapor arising from the burning mixture was tolerated by the patient, and did not give rise to vomiting; while it appeared to aid in arresting the diphtheritic process. Schenke modified Delthil's treatment as follows: A mixture was prepared of 200 grammes (6 ounces) of coal tar and 80 grammes (2 ozs. 6 drs.) of turpentine; and of this 50 grammes (1½ ounce) were vaporized at the bedside four or five times a day, each use of the vapor occupying half an hour. His observations led him to believe that the benefit from this treatment accrued chiefly from the turpentine, and largely from its general effect upon the system. He therefore employed turpentine internally in doses of ten minims to one teaspoonful, given from one to three times daily in milk, sugar, water, or gruel. At the same time he employed it as a spray. He also used alcoholic stimulation; and of 36 cases treated by the turpentine, 31 recovered. Rose, of Hamburg, treated 58 cases of diphtheria with turpentine, with the result of 95 per cent. of recoveries. He gave it three times a day in teaspoonful doses, mixed with spirits of ether (ether, 1 part; alcohol, 3 parts), and also gave a teaspoonful of a two per cent. solution of salicylate of sodium every two hours. He used the turpentine cautiously in anæmic cases and in cases with full heart action. Sigel stated that turpentine, in teaspoonful doses, reduced the temperature in 47 cases, in 14 of which the symptoms were so severe that the question of tracheotomy arose, but was postponed by the beneficial effect of the turpentine. Of the whole number of cases treated by him with turpentine, 87, death occurred in 14.9 per cent., while in those treated by bichloride of mercury, salicylic acid, potassium chlorate, etc., 32.5 per cent. died.

Sodium benzoate is another agent that has attracted considerable attention. Blandel had reported two hundred consecutive cases treated with it, without the loss of a single patient. He gave every hour a teaspoonful of a solution containing fifteen grains of the benzoate to the ounce, together with one-sixth of a grain of sulphide of calcium in solution or granule; and the throat was sponged every half hour with a ten per cent. solution of

the benzoate. At the same time the room was kept constantly filled with steam from a vessel containing carbolic acid, turpentine, and oil of eucalyptus. Dr. I. N. Love recommended the sodium benzoate in five, ten, or fifteen grain doses, and, given in syrup and cinnamon water, the solution was not unpleasant. Letzerich, Graham, Brown, and Sanné, from experiments made on animals, considered this agent as a specific against the virus of diphtheria; while Dumas, who had not derived benefit from it in the actual treatment of the disease, proposed, as had been mentioned, that it should be utilized as a precaution.

Renou had considerable success with the following method of treatment: To water constantly boiling a teaspoonful of an alcoholic solution of carbolic acid, salicylic acid, and benzoic acid is now and then added; so that in twenty-four hours 10 drachms (40 grammes) of carbolic acid, 2 drachms (8 grammes) of salicylic acid, and 4 drachms (16 grammes) of benzoic acid are employed. The quantity may be increased if the size of the room, the age of the patient, or the severity of the attack seem to require it. No local treatment, apart from the inhalation, is resorted to; but constitutional treatment and sustaining measures are employed to the fullest extent. Barbet had used Renou's treatment for three years with much success. In 51 cases thus treated 48 recovered. His method is to place on a petroleum stove an earthen pot full of boiling water, into which is put a tablespoonful of Renou's liquid every two hours for adults, and every three hours for children between the ages of one and ten years.

Dr. Smith spoke in strong condemnation of the use of pilocarpine (which had been highly lauded by some authorities), on account of the disastrous results liable to be produced by it. He said he had seen it cause symptoms resembling those in extreme œdema of the lungs.

In speaking of calomel he quoted the favorable opinions expressed by Drs. George B. Fowler, William H. Daly, H. C. Wood, and others, regarding it; but said that the experience of most physicians in New York who had tried it had been unsatisfactory.

Having referred briefly to the treatment by quinine, and by copaiba and cubebs, he passed on to chlorate of potassium, and having presented the views of various authorities in regard to it, gave the following prescription which has been long and favorably known in New York, and is probably more frequently written, with more variations in its properties, than any other in diphtheria.

℞.—Tinct. ferri chlor.	f℥ij-iij.
Potass. chlorat.	℥j.
Acid. muriat. dilut.	gtt. x.
Syr. simplicis	f℥iv.

Dose, one teaspoonful every one or two hours. The tendency, however, has been in late years to diminish the amount of potassium chlorate, or to omit it altogether, from its known irritating action on the kidneys, which are so prone to inflammation in this disease; and he thought it should probably always be omitted if albumen appeared in the urine.

Dr. Smith mentioned, in passing, the use of bromine and of permanganate of potassium, and the styptic treatment by the local application of Monsel's solution, and then spoke of papayotin in diphtheria. Rossbach had used this agent in a solution of the strength of one to twenty frequently applied to the fauces. In very young children a few minims might be placed on the tongue every five minutes. Dr. A. Jacobi stated that papayotin digests a thousand or two thousand parts (according to others, two hundred parts) of moistened fibrin, while not injurious to the mucous membrane. Dr. Jacobi had at one time lost confidence in its efficiency, but afterward had reason to believe that the specimen employed was impure. More recently he had found the drug to act well, and stated that diphtheritic membranes are dissolved in a few hours, in a few cases after a day only. He employed a mixture of one part of papayotin, two parts of glycerine, and two parts of water.

Dr. Smith spoke favorably also of the solvent action of trypsin, which, like that of lime water (by itself of very feeble solvent power), is increased by being used in conjunction with an alkali. He suggested the following formula for a spray:

℞.—Sodii benzoat.	℥j-ij.
Sodii bicarb.	℥ij-iij.
Trypsin	℥j.
Ol. eucalypti	f℥j.
Liq. calcis	Oj.—M.

DR. C. A. LEALE said that after intubation of the larynx, as well as tracheotomy, one great cause of trouble complained of by operators is the difficulty of feeding the patient. To obviate this drawback he had been in the habit of resorting to a very simple and yet very efficient method of introducing food, which he thought ought to be more generally known. This was by means of a Tiemann flexible rubber, velvet-eyed catheter, No. 8, which can readily be passed through the nose and then down the œsophagus into the stomach even when the tube is in position. Thus, with an ordinary syringe liquid food of any variety can be injected through it at will. This device can also be employed during unconsciousness, in convulsions, etc., and on account of its simplicity and easy application it is desirable that it should be understood by all.

DR. FREDERIC S. DENNIS then read a paper on

SELECTED CASES OF SARCOMA IN BONE, WITH PRESENTATION OF SPECIMENS AND MICROSCOPICAL SECTIONS.

(See page 29.)

PATHOLOGICAL SOCIETY OF PHILADELPHIA.

Semi-annual Conversational Meeting.

THE PRESIDENT, F. P. HENRY, M.D., IN THE CHAIR.

DR. W. T. COUNCILMAN, of Baltimore, delivered an address on

SOME FURTHER INVESTIGATIONS ON THE MALARIAL GERM OF LAVARAN.

This organism, first described by Lavaran, has been met with in every case of malarial fever which the speaker has seen. The organism is in high degree polymorphous, and ten tolerably distinct forms may be found in the blood. Some of these evidently represent different stages of development, and the connection between them is obvious. Others present such marked differences in form, that no connection between them can be made out. Some of the forms are only found outside of the red corpuscles, and others are found free in the blood.

The forms described are: 1, non-pigmented, small, amœba-like bodies inside the red corpuscles; 2, pigmented bodies, larger than No. 1, also in the red corpuscles; 3, pigmented bodies about the size of red corpuscles; 4, segmenting forms of the No. 3 body; 5, small hyaline bodies, which are formed by this segmentation; 6, a crescent-shaped body with pigment in the centre, the horns of the crescent being often connected by a fine line; 7, round or oval bodies, which differ from No. 6 in shape only; 8, a pigmented body provided with numerous long, actively moving flagellæ; 9, actively moving free flagellæ, which are evidently derived from No. 8; 10, a pigmented body with an active undulatory movement of its periphery. The first five forms are found only in intermittent fever, No. 4 only being seen in the blood during the chill period, and its presence is invariably connected with the chill. Nos. 6 and 7 are found in cases of malarial cachexia.

The most interesting forms, and about whose parasitic nature there can be no doubt, are the bodies Nos. 8 and 9. These are generally absent in blood taken from the finger, but they may be found in any type of the disease. They are the only forms of the organism whose presence in the blood is not associated with a special type of the disease. They were found, however, in 15 out of the 20 cases in which the blood of the spleen was examined. Of these 20 cases, 12 were cases of malarial cachexia and 8 of intermittent fever. In the 12 they were found ten times, and in the 8 cases of intermittent five times. From this it seems probable that Lavaran was right in considering the flagellate organism the most important form of the parasite.

The influence of quinine on the intracorpuscular forms of the parasite is most marked. Doses of 15 grains t. i. d. for two days in succession were found sufficient to cause them to disappear. The effects of the quinine were not so apparent in the other forms. The crescents were apparently not diminished in number in one individual after he had taken 45 grains of quinine daily for seven days, and 60 grains daily for four days.

Dr. Wm. Osler said the thought which had struck him most forcibly, in looking over this subject, was the almost perfect unanimity which has prevailed among the different observers as to the appearance of these organisms. With the sole exception of the segmented form (No. 4), Lavaran and the early observers had described them all. His own observations, since the communication he had presented to the Society last year, had been somewhat limited. He had, however, made a series of observations upon the blood of fishes and birds, since it had been stated that bodies resembling Nos. 1, 2, and 3 had been found in the blood of carp and some waterfowl. Prof. Baird had offered him facilities for this work at Wood's Holl, and had kindly furnished him with forty-five carp. He had failed to detect any such organisms in the blood of these. In the blood of a goose sent him from Ontario he had found one or two pigmented bodies. It had been stated by Dr. McCallum, who sent him the goose, that the bird had malaria. However, the bodies were not numerous, nor was the temperature of the goose elevated; nor, so far as he could make out, had it chills.

Dr. Councilman had not figured one body which is very peculiar indeed, namely a solid body in the centre of a clear space. It stains like a microörganism, varies in size, and, although the body itself does not change in form, yet there are sometimes changes in outline in the clear space surrounding it—they were somewhat abundant in one case only. One other point with regard to the clear bodies (No. 1), in five or six instances he had seen such bodies pass out from the corpuscle, remaining out and undergoing no further change of form. He was not altogether prepared to say what is the relationship of these bodies to the other bodies described. It has been claimed that similar changes can be obtained by special methods of staining the blood. The most important question is first to determine the relationship of the hyaline to the pigmented bodies, and the possibility that the hyaline may not be directly associated with them.

He was convinced that the pigmented and segmented bodies are merely different stages. He could fully confirm what Dr. Councilman said with regard to the crescents. They are most peculiar and interesting bodies, occurring in the chronic cases and in those in which there had been no chills. Three weeks ago he had lectured on a case as one of mild typhoid fever; it had lasted eight or ten days with constant fever, up in the evening, down in the morning, slight enlargement of the spleen, no spots. His resident examined the blood and found what he thought were crescents. The case got rapidly better, left the hospital, and returned in a few days with a distinct chill, with crescents in the blood and a well-marked remittent fever. The motile forms he had not seen nearly so frequently as Dr. Councilman; though he had not examined the blood from the spleen they had been present in eight or ten cases. Nor had he seen free filaments nearly so often; when he wrote his paper he had not seen them at all. Since then he had watched the process of separation. It is out of the question to suppose that the crescents or motile forms can come from degenerations in the stroma of the corpuscle, but that the hyaline forms result from such changes is not altogether improbable, and further investigations are necessary to determine this point.

Dr. J. P. C. Griffith called attention to the diagnostic value of these organisms, and instanced a case, where from the indefinite history and symptoms, he was unable to make a diagnosis until after an examination of the blood, when a short course of treatment resulted in a cure.

Dr. H. C. Wood said that no one seemed to have made any connection between the crescents and the amœboid forms, they seem to differ in that these are destroyed by quinine, those are not affected. We know that malarial cachexia is cured by quinine, arsenic, and iron. If these remedies have no effect on the crescents, what connection have these bodies with malaria, and what becomes of them, do they eventually disappear?

Dr. Formad asked whether these organisms are the same as the bodies described by Hütter some twenty years ago.

Dr. Councilman said, in concluding, that Hütter described moving bodies attacking the red corpuscles, existing in all fevers and apparently almost everywhere else. These observations had never been confirmed. The point raised by Dr. Wood had always puzzled him, and for a long time he had tried to reconcile himself to a belief in two distinct diseases, but this he could not do, as always, as the other forms disappear, the crescents appear. He had never seen the crescents unless with a

history of previous chills. He was not altogether prepared to say that quinine had no effect on the crescents, though in several cases he had given it in large doses with no results. Still in some cases they do seem to disappear. He thought with Dr. Osler that the crescents could not be possibly produced by changes in the stroma of the corpuscles, though some of the other forms might.

NEWS ITEMS.

The Annual Meeting of the Kings County Medical Association, Brooklyn, N. Y., was held January 3d. The election of officers took place with the following result:

President.—E. R. Squibb, M.D.

Vice-President.—T. M. Rochester, M.D.

Secretaries.—R. M. Wyckoff, M.D., and J. A. Jenkins, M.D.

Treasurer.—J. R. Vanderveer, M.D.

Two papers by Drs. McCollum and Rochester were read upon "Fever," and the debate was closed by Dr. Austin Flint, of New York City, who was present by invitation. The attendance was large.

Alumni Association of the Woman's Hospital in the State of New York, held its third annual meeting at the New York Academy of Medicine, January 13, 1888.

Appointment.—Dr. Charles H. May has been appointed Visiting Ophthalmic and Aural Surgeon to the Randall's Island Hospital, New York.

The Cremation of Hospital Garbage.—If the Chicago city crematory for garbage proves successful, Cook County Hospital will erect a similar one for hospital use.

The Spontaneous Explosion of Chlorate of Potassium burst the jar containing it, and set fire recently to a chemist's shop in Barnstaple, England.

The First Recorded Case, in America, of Fatal Œdema of the Larynx, was that of General Washington, who was treated in accordance with the antiphlogistic methods of his time. No local treatment, beyond the inhalation of the vapor of vinegar and water, was employed.

Dr. Asa Gray, the eminent botanist of Harvard University, has recently suffered an attack of apoplexy. He is aged seventy-seven.

A Statue to Von Langenbeck.—At a recent session of the Berlin Medical Society the proposal to erect a statue to the late Professor was favorably discussed, and it was determined to enlist the coöperation of the Congress of German Surgeons, to meet in the coming spring.

Honors to Professors Senator and Hahn, at Berlin.—These well-known members of the Berlin faculty have been given the additional titles of Confidential or Court Advisers, a recognition by the government of their distinguished services.

A Banquet to Péan.—To celebrate his election to the Paris Academy of Medicine, a banquet was recently given to this distinguished surgeon, at which the leading surgeons of Paris congratulated him on his continued success.

Recent Statistics from the Pasteur Institute, Paris.—During the month of October, 1887, 144 persons were treated at the Pasteur Institute, in Paris.

Of these 69 had been bitten by animals proven to be rabid; 96 were bitten by animals said by veterinarians to be rabid; 16 were bitten by suspected animals. Of these patients one has died from hydrophobia; one from another cause.—*Le Bulletin Médical.*

A Physician Convicted of Murder.—Dr. Philip Cross, a retired Surgeon-major, and a licentiate of the Royal College of Surgeons, Ireland, was recently convicted of the murder of his wife, by the administration of arsenic.

Diphtheria in a Dissecting-room.—Some little excitement has been caused in Lyons by the death of a medical student from diphtheria, which, according to the newspapers, he contracted from a subject he had been engaged in dissecting. To this assertion the dean of the faculty wrote a distinct denial, stating that the bodies of patients dead of diphtheria are never sent to the dissecting-room. This, however, did not satisfy everybody, for a rejoinder appeared, signed "A group of *externes*," declaring that the child whose body had been dissected had died of croup. According to *La Province Médicale*, the cause of death was meningitis. Though the practitioner who sent the case to the hospital had diagnosed it as one of diphtheria, the house physician had been unable to find any evidence of diphtheria, and the little patient died the same night that it was admitted. Even if the child had had diphtheria, *La Province Médicale* thinks it is extremely doubtful whether the theory of infection could be maintained, for it is not by any means certain that dead diphtheritic membrane can convey infection, especially after the lapse of eight or nine days, which was the period that had intervened between death and dissection. In addition to this, the unfortunate student had not touched the thorax or throat, having been engaged merely with the brain.—*Lancet,* December 17, 1887.

A French Prize of $2000 has been divided among four Paris physicians for essays upon the "Treatment of Strictures of the Urethra." The essays presented were of such equal merit that no one could be selected for the entire sum.

Lead Poisoning in Modern Industries.—GAUTIER has recently presented to the Paris Council of Public Hygiene a report upon cases of lead poisoning in the Department of the Seine. He has reported at intervals of three years; and for 1884–86 he finds a yearly average of 239 cases, which is a diminution of nearly fifty per cent. as compared with the three years preceding. He ascribes this change to hygienic measures enforced in manufactories, and especially to the discontinuing of the use of a brand of white lead, known as "Clichy white lead," which had proven very disastrous to a number of workingmen. The mortality is greatest among painters, and all who have to do with colors, 19 deaths among 481 cases having occurred in three years. This is caused by the persistent use of lead "whites" when zinc salts could be substituted. Gautier hopes to bring about Government control of this

matter which will oblige manufacturers and railways to abstain from handling lead colors unless mixed with oil, powdered white lead being especially dangerous.

Surburban Hospitals for Contagious Diseases.—Four large hospitals are projected in the vicinity of Paris, two for patients suffering from variola, one for diphtheritics, and one for patients with measles.

The Secularization of Paris Hospitals.—By a recent decision of the Council of Public Assistance the Charité will be deprived of its Sisters of Charity during January, 1888, and their places will be filled by non-religious nurses. The Saint-Louis and l'Hôtel-Dieu will be then the only hospitals in Paris still in charge of Sisters of Charity.

The Advantages of the Inspection of Plumbing by Health Departments.—The *Sanitary Engineer* of December 3, 1887, reports eleven instances of the arrest and conviction of plumbers by the New York Health Department, for defective plumbing. In many instances joints were found stuffed with oakum, or plastered over with a mere film of lead, when these joints were in localities not readily accessible. These arrests and convictions occurred within a few weeks, and give an idea of the constant need for the exercise of municipal authority to secure proper hygiene.

The Construction of Theatres.—The *Lancet* of December 17, 1887, considers it a hopeful sign that the Royal Institute of British Architects has devoted an evening to the discussion of the important subject of the construction of theatres. The construction of theatres must be similar in principle to that of all buildings devoted to large public gatherings, and, as the right of public meeting is just now much exercised by the British public, the proper construction of the rooms in which these meetings are held is of paramount importance from the treble point of view of convenience, health, and safety. Mr. Ralph Nevill, who furnished the paper upon which the subsequent discussion was based, seems to have given much thought to his subject, and many of the points upon which he touched were treated with marked ability. As far as the question of convenience is concerned, Mr. Nevill rightly insisted that the triangular form, with the stage at the apex, is the best, as affording an uninterrupted view to each member of the audience. The little matter of placing the seats in the stalls alternately, so that the persons in the back row can see between those in the row in front, is from the point of view of comfort most important. The remarks as to the dangers of long straight staircases were certainly true, and it should be the aim of architects to lessen the length of staircases as much as possible. It is probable that in case of panic from fire there is less danger in ascending an easy gradient than in descending. The importance of this point is very great, but we do not notice that Mr. Nevill touched upon it in the course of his paper. We are glad to see that Mr. Nevill recognizes the fact that, although the electric light does not foul the air of the theatre to the same extent as gas, it does not assist in the ventilation as the latter illuminant can be made to do. The admission of fresh air and the outlet of foul air, are, after all, the most important points in the construction of theatres, and we are convinced that the draughts, which are the chief characteristics of the modern theatre, are certainly due to the fact that architects do not attack this point with sufficient courage, and the air not being admitted in sufficient quantity in the right places, it must rush through the wrong ones and thus cause draughts.

Dr. Arthur Farre, F.R.S.—The death of Dr. Farre, Professor of Obstetrics in King's College, Physician-Extraordinary to the Queen, and Physician-Accoucheur to their Royal Highnesses the Princess of Wales, Princess Christian, and the Duchess of Edinburgh, is announced, at the age of seventy-six years. He had held offices of distinction in the Royal College of Physicians, and was the author of a well-known work on *The Anatomy of the Uterus and its Appendages.*

Professor Balfour Stewart. the distinguished English physicist, died recently, aged fifty-nine years. He had been Director of the Kew Observatory, and was awarded the Rumford medal of the Royal Society for his discovery of the law of equality between the absorption and radiative powers of bodies.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM JANUARY 1 TO JANUARY 9, 1888.

Cleary, P. J., *Major and Surgeon.*—Granted leave of absence for one month.—*S. O. 138, Department of Arizona*, December 25, 1887.

Ebert, R. G., *Captain and Assistant Surgeon.*—Ordered from Custer, Montana, to Fort Pembina, Dakota Territory.—*S. O. 301, A. G. O.*, December 30, 1887.

Appel, A. H., *Captain and Assistant Surgeon.*—Granted leave of absence for twenty days.—*S. O. 1, Department of Missouri*, January 3, 1888.

Ewings, C. B., *First Lieutenant and Assistant Surgeon.*—Granted one months leave.—*S. O. 137, Department of Missouri*, December 27, 1887.

Banister, William B., *First Lieutenant and Assistant Surgeon.*—Ordered from Fort Lowell, Arizona, to Fort Wingate, New Mexico.—*S. O. 3, A. G. O.*, January 5, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING JANUARY 7, 1888.

Murray, R. D., *Surgeon.*—On being relieved at Ship Island, Miss., to proceed to Key West, Fla., and assume charge of the Service, January 4, 1888.

Devan, S. C., *Passed Assistant Surgeon.*—Relieved from duty at Port Townsend, Washington Territory, to assume charge of Sapelo Quarantine, January 5, 1888.

Glennan, A. H., *Passed Assistant Surgeon.*—Relieved from duty at Key West, Fla., to assume charge of the service at Port Townsend, Washington Territory, January 5, 1888.

Covington, P. M., *Assistant Surgeon.*—Promoted and appointed Passed Assistant Surgeon from January 20, 1888, January 7, 1888.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the News *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

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ORIGINAL LECTURES.

SUICIDE IN ITS RELATION TO INSANITY.

An Address delivered before the Medical Jurisprudence Society of Philadelphia, December 13, 1887.

BY JOHN J. REESE, M.D.,

PROFESSOR OF MEDICAL JURISPRUDENCE AND TOXICOLOGY IN THE UNIVERSITY OF PENNSYLVANIA.

THE alarming increase of cases of suicide within the past few years, especially in this country, calls for the serious consideration not only of the philanthropist, but also of the medical jurist. Indeed, the medico-legal considerations connected with this subject are not only interesting to the student of legal medicine, but they involve questions of the deepest significance, which not infrequently claim the attention of our courts of law, and enlist the best talent of both the legal and medical professions.

This subject of suicide presents numerous phases for examination which are interesting and instructive for us as medical jurists; but I propose to limit myself to the discussion of a single one of them, viz., the relation of suicide to insanity in its medico-legal aspects. Does, or does not, the act of self-destruction always presuppose the existence of insanity? Or, in other words, is suicide to be regarded always as evidence of a deranged mind? The settlement of this question touches some of the most vital interests of society, and according as the verdict rendered is yea or nay, in any particular case of suicide, will be the feeling of the survivors that the act of the unhappy victim was an irresponsible one, and therefore guiltless, or that it was truly a case of voluntary, conscious self-murder, with all its appalling guilt and tremendous consequences!

I have no doubt that in the average mind, especially the unprofessional mind, there is a strong conviction that suicide is very generally—if not always—the result of an insane impulse; that no person in his, or her, sober senses could possibly commit such a terrible act as self-destruction; and therefore that the act itself is conclusive evidence of insanity. "This doctrine," as has been remarked by another, "popularly finds expression in the verdicts of coroner's juries, who, desirous of respecting the feeling of surviving relatives and friends, usually return the stereotyped verdict of 'suicide while laboring under temporary aberration of mind.'" Indeed, are we not told on the highest authority that "All that a man hath will he give for his life?" Can it then be supposed that a human being, in a rational state of mind, will voluntarily throw away that which is so precious to him, and rush unbidden into the uncertainties of an unknown world? In a recent discussion on this subject before the New York Medico-legal Society, one of the members, a medical gentleman, maintained very decidedly that suicide is a *disease*, and should, therefore, be regarded as irresponsible.

It will be my purpose in this paper to show that while in many, possibly in the majority of cases, the act of suicide may be traceable to a deranged intellect, still there are instances, not a few, which cannot be explained in this manner; but which must be attributed simply to the firm, deliberate purpose and intention of the individual,—the mind acting throughout in a perfectly rational, intelligent manner, and the will influenced by motives sufficiently cogent to impel to the fatal act.

I would ask your attention to two distinct propositions: First, that suicide is, unquestionably, very often the direct consequence of insanity; and, secondly, that suicide is also frequently to be ascribed to the calm, deliberate determination of a perfectly sane individual. These two propositions, although seeming contradictory and opposite, are not so in reality, as will be seen as we view the subject from different standpoints.

The first of these propositions, viz., that suicide is often directly the result of insanity, is so palpable as scarcely to require proof. Every practitioner of medicine can testify to multitudes of such unhappy cases, the result either of the delirium of acute fever or cerebral inflammation, or of chronic morbid melancholia. Indeed, he well knows that in the last named variety of insanity, the *suicidal propensity*, as it is called, is a symptom demanding the most unwearied watchfulness on the part of the attendants.

It may be as well to notice here that this "suicidal impulse" sometimes displays itself very suddenly, and without any apparent previous warning; whilst at other times it assumes the form of a delusion or hallucination, which, like an invisible spirit, may haunt the unhappy victim for months or years. A well known striking instance of the former is related by Sir C. Bell: "One of the surgeons of the Middlesex Hospital was in the habit of going every morning to be shaved by a barber in the neighborhood, who was known as a steady, industrious man. One morning, the surgeon was conversing with the barber about an attempt at suicide that had recently occurred; and the surgeon observed that the man had not cut his throat in the right place. The barber then inquired casually where the cut should have been made? The surgeon pointed out on his own neck the situation of the carotid artery. The barber, in a few minutes, retired to the back of his shop, and there cut his throat with the razor with which he had been shaving the surgeon. He had wounded the carotid artery in the place indicated by the surgeon, and died before any assistance could be rendered to him." As is properly remarked by the relator, "although this act was quite sudden and unexpected, it may have been only the final result of a delusion which had long existed, concealed from others in the mind of the man—just as the sight of a weapon has often led to its use for the purposes of suicide."

I do not myself believe that this "suicidal impulse"

ever manifests itself suddenly, and for the first time in a person of a perfectly normal mental calibre—like a flash of lightning out of a clear mid-day sky. I cannot but think that if the history of the individual be carefully traced, there will generally be discovered some evidences of antecedent, latent mental aberration, either inherited or acquired.

As regards those cases of "suicidal impulse" of a more chronic nature, such as are so frequently seen in melancholia, I need only to allude to them here, in passing. Of course, there can be no question about all such cases being directly attributable to insanity.

Let us next examine the second proposition, viz., that suicide is not necessarily evidence of insanity, but that cases do occur, not unfrequently, where the act of self-destruction was the result of a calm, deliberate determination, based on sufficient motives, and executed for a special purpose. And here, let me say a word or two about *motive*, as an important factor in determining any case of alleged insanity. If we desire to form a correct estimate of a certain action or line of conduct, we usually endeavor to ascertain the *motives* which prompted thereto. The *motiveless* character of a particular act is generally regarded as strong evidence of a deficiency of mental capacity; and it is constantly urged by counsel before the jury, as a very strong proof of mental unsoundness on the part of a client, whom he is laboring to defend. Unquestionably, there is much truth in this proposition, as far as it goes; but before assenting to it universally, or unconditionally, we should first set about to discover whether under the *apparent* want of motive, there may not have lain, deep down in concealment from every human eye, and scarcely recognizable by the individual himself, a motive, sufficiently powerful *in that particular person*, to instigate to just such a criminal act as the one for which he is now undergoing trial. Professor Casper justly remarks that we are very apt to be misled in our interpretation of criminal acts, by our false notions about the *apparent* want of motive in the criminal. I beg you to notice this point particularly. "It is undoubtedly true that a motive to any deed may exist for one person, under the power of which he is urged on, which would be wholly inoperative in a hundred other cases. To recognize this, however, the inquirer must in every case place himself in the position of the culprit, and divest himself of his own ideas for the time being." There is great force in these words of Casper. This distinguished authority gives us two illustrations of his meaning, taken from the two extremes of social life. One of them, an utterly depraved character, had run a life-long reckless course, and had committed offences for which he had often been imprisoned. This abandoned man is by chance thrown in company with another tramp, who happens to display before his eyes a trifling sum of money—a few coins. The criminal is seized with the desire of possessing this money, and to gratify this desire he will not scruple to murder his fellow. The other instance is that of a young military officer of high birth, and higher spirit, who, while walking in the public park, among a company of ladies and gentlemen, is suddenly assaulted in the grossest manner by a blow in the face, by some low, abusive fellow. Transported with rage beyond endurance, he draws a pistol, and shoots his assailant dead, or runs him through with his sword.

Now, here we have two criminals, each of whom has committed the terrible crime of homicide; and how are we to interpret these different acts? On their trial, their counsel might probably urge the plea of temporary insanity, based upon the want of sufficient motive for the commission of so grave an offence, under such apparently insufficient inducement. And doubtless, had these two culprits exchanged places, the *motive* actuating each would have changed also, and the result would not have been so tragic. "For," as he remarks, "it need hardly be supposed that the young, educated officer would have been tempted to commit murder merely to obtain possession of a few insignificant coins; nor, on the other hand, that the first-mentioned criminal would have possessed so touchy a sense of honor, as not to be able to cool his wrath, and satisfy it with his fists alone, without deeming it necessary to kill his antagonist."

These illustrations, although pertaining to homicide, are equally applicable to cases of suicide. Let us not, then, be too hasty in ignoring the existence of *motive* in cases of criminal nature, whether of homicide or suicide, even though we ourselves may not be able to fathom that motive in the other, nor indeed even to conceive of its existence. I think I am perfectly safe in assuming that we may regard the presence or absence of motive—of *real* motive—as the pivot, so to speak, on which will hinge the decision as to whether any one particular act of suicide was, or was not, the result of insanity. You will observe, I say, the existence of *real* motive. It is not necessary that it should be such a motive as would influence you or me, *in our present circumstances;* but a motive sufficiently constraining *under the particular circumstance in which the individual was placed in that special crisis of his life.*

To take a very common and familiar illustration: A person in good social position, who has always enjoyed the confidence and respect of the community, has for years been secretly defrauding his employer, or his wards, of large sums of money, until concealment is no longer possible, and the terrible revelation is about to be made of the utter financial ruin of his unsuspecting victims. He foresees the near approach of the crisis which he too well knows must unmask his hypocrisy, and expose him to the just indignation of the world, and drag him down to the felon's doom. Shall he quietly wait for the avenging sword to fall upon his devoted head, or shall he not rather save himself from the dreadful exposure, with all its awful consequences, by a swift but deliberate act of self-destruction? Now try this case by our touchstone of *motive*. Will any one say that there was not motive sufficient here to account for the suicide? There was no hallucination, nor delusion of mind interfering with the man's reasoning processes, or preventing the free exercise of his volition. The motive was based on a reality, on a real estimate of his position and its consequences. Of the two great evils, loss of honor or loss of life, he deliberately chose what he considered the less, and so died by his own hand. Certainly we cannot ascribe such a suicide to insanity! Do any of us believe for a moment, that the anarchists of Chicago, who have so lately met their doom, would not gladly have forestalled their well-merited execution by a dynamite or other suicide, if only the means had been granted them,—as in truth it was in one instance? And in precisely the same category would I place those cases of self-destruction following loss of honor, loss of property, loss of employment, mortified

pride, disappointed love, disappointed ambition, remorse, and other kindred causes. Take away from the wretched ones of earth all belief in the existence of God, and of a future state of retribution, and what, I ask, is to hinder them from putting a speedy end to all their sorrows and disappointments?

I know very well that some will urge that all such individuals have been driven into temporary insanity by their various sorrows, disappointments, losses and afflictions; and that the suicidal act was committed while under this temporary insane delusion. The reply to this apparently valid, though really specious, objection is, that it is "begging the question" to assume the very thing required to be proved. Such a line of argument would equally excuse any, and every act of violence inflicted upon another, upon a similar plea of insanity.

It may not, perhaps, be amiss to fortify this second proposition, that suicide is frequently *not* the result of insanity, by an appeal to history, ancient and modern, sacred and profane. It is well known that in the highest civilization of ancient Greece and Rome, the Stoic and Epicurean philosophy maintained not only the lawfulness of suicide, but openly taught that it was preferable to great pain and disgrace; and in accordance with this universally prevalent doctrine, the wisest and most illustrious men of that age killed themselves, rather than be dishonored, or suffer pain. Thus Zeno, the founder of the Stoics, hanged himself, in his ninety-eighth year, rather than endure the pain and inconvenience of a dislocated joint. The generals, Mithridates, Hannibal, Themistocles, Mark Antony, Brutus and Cassius, all sought a similar death, after being defeated in battle. Demosthenes, Cato of Utica, Seneca and Cleopatra believed in suicide, and practised it.

Sacred history affords us many examples of voluntary self-destruction in the persons of king Saul of Israel; of the mighty Samson; of Ahithophel, king David's trusted counsellor; and of the traitor Judas. No one, for a moment, would think of ascribing any of the above instances of suicide to insanity. Certainly, those concerned, comprising philosophers, statesmen, generals and commoners, were persons of no mean order of intelligence.

In more modern times, there have not been wanting persons of brilliant intellect, though of sceptical belief, who have openly advocated both the lawfulness, and the desirableness of suicide; among whom I may mention Rousseau, Gibbon, Hume, Mme. de Stäel, Montaigne and Montesquieu. However we may condemn the doctrines of these people, we cannot surely ascribe their false opinions to any want of intellect, since we well know that they shone as stars of the first magnitude in the literary and social circles of the age.

Even in our own time, in some of the Oriental countries, the practice of self-immolation still prevails to a certain extent. The custom of the Hindoo widow burning herself upon the funeral-pyre of her husband, I believe still lingers in certain parts of India; and the singular custom of *hari-kari* is scarcely yet abolished in Japan.

The benignant influence of the Christian religion, as it gradually spread over the world, had the effect of working a radical change in the popular sentiment as regards suicide. The old heathenish notion of its lawfulness was abandoned, and the practice came to be regarded as a *crime* of the first magnitude, and to be punished as such by the laws of the country. Indeed, so severe were the penalties annexed to this crime, as visited upon the person, the effects, and even the family of the *felo-de-se*, that a recoil of popular feeling took place against the barbarous and revolting laws of that age; and, as a consequence, the attempt was made, and gradually obtained a foothold, to ascribe such cases to the action of a disordered intellect, so as thus to avoid the imputation of crime.

The laws of the Church at this period were equally severe against the practice of suicide—regarding it as a crime of the highest magnitude, and refusing Christian burial to the bodies, and Christian consolation to the souls, of suicides.

Now, you will observe, that this very fact of suicide being regarded by the laws both of the Church and State as a *crime*, and to be punished accordingly, is a conclusive proof that these laws did not consider it as originating in insanity; otherwise such laws would be most monstrous and inhuman, inasmuch as insanity necessarily precludes all idea of responsibility. In England, scarce half a century has elapsed since the bodies of suicides were denied the right of Christian burial; and up to that same period the old practice still prevailed of burying the body of the suicide at the cross-roads, and thrusting a stake through it, in order to show the public detestation of the crime.

At the present day, this question of "the relation of suicide to insanity" most frequently presents itself in cases of life insurance, where there is a dispute about the payment of the policy to the heirs of the deceased, on the ground of his alleged death by suicide; and it very often occasions no little difficulty to the courts. Until within a few years past, it was the general practice of life insurance companies to insert in their policies a saving clause, exonerating them from payment in case the death of the assured was caused by his own hand; and making no distinction between a sane and an insane suicide. This was manifestly both unjust and unlawful, so far as the *insane* act of self-destruction is concerned; for most certainly, an individual should be held no more responsible for the loss of his life, whether he takes it by his own hand when impelled by the delusions of melancholia, or under the ravings of the delirium of a fever, or of cerebral inflammation, than if he dies from an ordinary disease, or from an accident. If, on the other hand, it can be clearly shown that the assured, after placing enormous amounts of insurance money upon his life, in various offices, and making only one or two payments of the premiums, had put an end to his own life, in a perfectly intelligent manner, and evidently with the intent and design of benefiting others—and especially his own family—pecuniarily, by his death, then the question assumes altogether a different aspect. Neither justice nor equity could plead in his favor, in such a case. Undoubtedly, under such circumstances, the company should be exempted from payment, unless it can be clearly demonstrated that the individual was insane at the time when the act was committed.

I might detail many such cases, of considerable interest, to you, but I will be content with a bare allusion to two instances, both of them of very recent occurrence, and both remarkable for the large amounts of money involved. The one is the celebrated Dwight case, which occurred about two years ago at Binghamton, N. Y., involving several hundred thousand dollars of insurance money, in

various offices. This case has been tried in the different courts, and we now hear that it has been recently compromised. The other case is that of Tyler, of Norwalk, Conn., which occurred within the present year. This man, having spent a fortune in profligate living, applied within the space of six months for an aggregate sum of $400,000 of insurance on his life, having previously announced his intention to effect this large insurance for the benefit of his various creditors, and then to kill himself. By false statements to the offices to which he made application, he succeeded in his design. He then writes to his mother of his intention to take his life; after which, he comes to Philadelphia; from which city he again communicates to a friend his suicidal purpose, under an assumed name; and, finally, he returns to Norwalk, and is found in the morning dead in his bed, from an overdose of morphine, leaving a memorandum upon his table. The majority of the insurance companies, I am informed, are defending their cases in the courts upon various grounds—amongst others, on that of conspiracy between the deceased and the creditors.

In each of the above cases, to which I have made brief allusion, there are certainly very strong reasons to suspect voluntary suicide to have been the true cause of death; and that, too, without the slightest suspicion of insanity on the part of the deceased.

You will notice a most significant fact in these, and in analogous cases, viz., that the insurance on the life of the person had been but lately effected, and usually for a considerable amount, and in various offices; and, further, that only one or two premiums had been paid before the suicidal death occurred.

Now, I do not think that we need be much surprised at such occurrences. Why should not such an individual, pressed down by the burden of some enormous debt, which he has been vainly hoping to pay, (if restrained by no belief in, or dread of, a future judgment)—why, I say, should he *not* embrace the tempting offer to insure his life for an amount which will not only repay his indebtedness, and rescue his name from dishonor, but at the same time save from poverty and want those whom he loves better than himself? Try this case, again, by the touchstone of "motive." Why should not the spirit of self-sacrifice be as dominant in such a one, as in any of the cases that we have just been considering?

To quote the words of another: "The pelican which picks its own bleeding breast to nourish its savage young, has been adopted as the symbol and title of one of the largest life offices of Great Britain; and who shall speak other than reverently of that played-out rake, who took his own life, after liberally insuring it, in order, as he said, to enable his widow to start again with a younger and more vigorous man?" Remember, I beg you, my simple object, in this line of argument, is not to enter a plea for the lawfulness of suicide, but simply to demonstrate that in none of such cases can the plea of insanity be urged as the true cause of the self-destruction.

Remember, moreover, that insanity alone is not by any means an all-sufficient excuse, in the eye of the law, for the commission of suicide, in a life-insurance case; but it must be proved that the suicide was not an *intelligent* act, and that it was produced by an insane impulse or delusion, which it was out of the power of the deceased to resist. The point at issue is—did the assured intend *freely* and *intelligently*, to destroy himself?—*intelligently*, *i. e.*, with his mind at the time unswayed by insane delusion? I pray you to observe the very important distinction between doing a thing *intentionally*, and doing it *intelligently*. The insane man, equally with the sane one, commits the act of self-destruction intentionally or knowingly, with the full purpose in view of terminating his existence; but he does not do it *intelligently*, with his mind in its normal equipoise, and "unswayed by an insane delusion."

A recent writer on this subject, the Hon. O. H. Palmer, of New York, to whom I am indebted for some of the points already noticed, says: "My experience for the past five years in the investigations of cases of suicide, has forced upon my mind the conclusion that but a comparatively small number of suicides, even in this country, is attributable to insanity."

I will close this paper with the mention of a few interesting statistics, connected with the subject of suicide.[1]

It appears that suicide occurs much more frequently among men than women: in England the proportion being about 2½ to 1; and in France about 4 to 1. According to Brierre de Boismont, more than 100,000 Frenchmen have committed suicide since the beginning of the present century; the statistics for the single year 1876 show the number for that year to have been 5567, of whom 4435 were men, and 1132 women. Twenty-nine were men under 16 years; and ninety-eight over 80 years. In both countries, the numbers increased notably with the age. Thus, in France the number under 16 years amounted to one per cent.; between 30 and 40 years, to fourteen per cent.; between 50 and 60 years, to twenty per cent.; and over 60 years, to thirty per cent.

As regards *locality*, in both countries the proportion of suicidal deaths is vastly greater in the cities than in the rural districts. In the Department of the Seine (which includes the city of Paris) they amounted to one-sixth of the whole number.

As respects *occupations*, the statistics of the two countries show a considerable difference. In France, agricultural occupations represent 23 per cent.; laborers and mechanics, 28 per cent.; merchants, property owners and professional men, 12 to 13 per cent.; personal servants, 9 per cent. In England, the mortality from suicide was greatest among soldiers; and was higher among the educated classes than among those exposed to rough, out-of-door pursuits.

As regards the *manner of death*, in both countries hanging appeared to be the favorite method adopted; next come drowning, shooting, and poison. Military and naval men, and members of the legal and clerical professions seem to prefer death by firearms, whilst physicians, dentists, chemists, and photographers appear to select some one of the many poisons with which they are familiar. Women usually show a preference for drowning, or poison.[2]

Finally, as respects the different *causes* leading to suicide: in France, 25 per cent. are set down to illness and physical suffering; 31 per cent. are credited to in-

[1] These have been derived mostly from a paper by Dr. John G. Lee, of this city, published in the Philadelphia Medical Times, June 12, 1886.

[2] The statistics of the 98 suicidal deaths in the city of Philadelphia for the year 1887 indicate a preference for poison. The suicides are, poison, 27; hanging, 23; firearms, 21; the knife, 11 drowning, 7; other modes, 9.

sanity; 15 per cent. to family troubles; 16 per cent. are ascribed to dissipation and misconduct; 11 per cent. were directly traceable to alcoholism; 13 per cent. to financial embarrassment and poverty. In the above statement, it is worthy of note, as appertaining directly to the special subject of the present paper, that only 31 per cent. of the whole number of suicides—less than one-third—are credited to insanity.

ORIGINAL ARTICLES.

TUMORS OF THE CHOROID PLEXUS IN THE NEIGHBORHOOD OF THE FORAMEN OF MONRO.

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THE presence in the choroid plexuses of the cerebral ventricles of small, cyst-like bodies in greater or less numbers, with semifluid or gelatinous stroma, and containing minute concretions of phosphate and carbonate of lime, with, not infrequently, cholesterine, is a very familiar fact. When found during the examination of a brain they are usually noted as a matter of routine, but seldom have any clinical significance attached to them. They are probably more frequent in brains which have been subject to frequent congestions, but even this supposition is not well established. Tumors of other kinds are less common, although nearly every variety has been met with.

Any tumor of the choroid plexus, if growing sufficiently large—which, however, these cysts or myxomata rarely do—may of course, like any other tumor of the brain, produce, by its direct pressure, localized symptoms. In a very few instances, however, one of which has given the occasion for this article, one of these usually harmless growths, not of large size, has been found so situated as to give rise to fatal results, not by direct pressure upon the cerebral substance, but from its influence upon the accumulation of fluid in the ventricles, so that we have an acute internal hydrocephalus, to be distinguished, on the one hand, from the ordinary internal hydrocephalus, usually chronic, and either congenital or acquired soon after birth; and, on the other, from ordinary acute hydrocephalus, chiefly external, which means tubercular meningitis. The situation especially adapted to produce this result is in the foramen of Monro, where the choroid plexuses of the two lateral ventricles become continuous with each other through the upper branches of the Y-shaped foramen, and where a small, round tumor may completely occlude the lower branch leading to the third ventricle.

Tumors in other portions of the choroid plexus, however, are apt to be accompanied, in chronic cases, by a certain accumulation of fluid secretion, resulting, according to the situation, from obstruction of the circulation, and in part very possibly from a pathological condition of over-activity of the secreting surfaces of the plexus and the ependyma. There are cases where choroidal tumors in the third ventricle, but somewhat posterior to the locality described, have produced a similar result, in addition to the effects of a direct pressure upon the ganglia underneath (optic thalami and lenticular nuclei). Pressure upon the venæ Galeni running along the roof of the third ventricle has apparently the same results in the production of hydrocephalus as venous obstruction elsewhere has in producing ascites, for example. It is not certain to what extent the choroid plexuses, and in fact the ependyma of the ventricles, are to be looked upon as true secreting structures in normal conditions, though it is clear that, pathologically, they may, like the peritoneum, pleura, or synovial membranes, pour out an excess of fluid.

Two theories, which do not, however, exclude each other, may be suggested to account for a large accumulation of approximately normal fluid in large quantity: first, that the ventricles, including the choroid plexuses—which are evidently, from their structure, fitted to be not only temporary reservoirs of blood, but for straining off some of its fluid and saline constituents—constantly pour out a fluid which passes through the foramen of Monro to the third, through the aqueduct of Sylvius (*iter a tertio ad quartum ventriculum*) to the fourth, and then through the foramen of Magendie to the subarachnoid spaces, where it is brought into connection with the general lymphatic system and absorbed. The existence of this last foramen has been doubted or denied by Kölliker and others, but seems to be established by the researches of Luschka and Key and Retzius. The second theory is that it does not circulate in a constant direction, but is subject to fluctuations in either direction through the passages just named, according to the local variations in the amount of blood contained in the cerebral vessels.

Upon either hypothesis it is easy to see how a tumor in the position described leads to an accumulation of fluid in the two lateral ventricles; on the first, simply obstructing the discharge of secretion, and on the second, acting as a ball-valve to admit an upward flow and prevent its return.

An accumulation of fluid in the lateral ventricles is more peculiarly fitted to produce a general and equalized pressure upon the cerebral hemispheres, while sparing to some extent the cerebellum, mesocephalon, and great ganglia, than almost any other condition, except hemorrhage in the same region acting from within, or a meningeal hemorrhage or inflammation distributed with more than usual even-

ness over the surface; and we can, therefore, look upon it as presenting the purest possible type of cerebral compression.

Schnopfhagen (*Stzber. d. Wiener Akad.*, Bd. 73–74, p. 447) says, that the choroidal cysts are especially frequent from the glomus forward to the foramen of Monro, and that another favorite place is on the under surface of the tela choroidea media—that is, the roof of the third ventricle—corresponding to the venæ internæ cerebri which open into the venæ Galeni.

The following cases are only those where a tumor was situated in the exact region first described—that is, the lower branch of the foramen of Monro, or in the third ventricle a little further back, where, if it be at all closely applied to the walls, the effect is essentially the same in the production of ventricular effusion plus more or less local irritation. I have not added to them the other cases—somewhat more numerous, though by no means common—of tumors situated in one of the lateral or the fourth ventricle, where the symptoms are apt to be of another character, though often including hydrocephalus. These may be found in a paper by Audry, in the *Revue de Médecine*, November, 1860, p. 807.

Of the first set (foraminal) I find only two: one by Förster (*Wurzburger med. Zeitschr.*, 1864, p. 39), and the other reported here for the first time.

Case I.—Girl, aged twenty. Had had headaches for a long time, and attacks of vertigo. She died suddenly of apoplexy. At the autopsy the ventricles were found moderately enlarged, filled with clear water, and a growth in the median line of the choroid plexus which had evidently caused the hydrocephalus. The growth was in the middle ventricle, directly at and in part in the much enlarged foramen of Monro. It was firmly situated in the tissue of the median choroid plexus, which partly entered it and partly spread about it. It was roundish, eight lines by six, well defined, smooth like connective tissue, with mucous, almost fluid substance. There were no other remarkable changes in the body.

Case II.—Mr. B., a man in early middle life was a patient of Dr. Fifield, of Boston, and was seen by the late Professor Ellis, who also made the autopsy and from whose notes and my own recollection I can give the following history: He had generally been very well, though subject to sick headaches, had bilious attacks, but no severe attack of the kind for two years. Had recently been overworked in his business. March 30th he came home saying they didn't know how his head felt, and he should be crazy if he kept on. The next day he returned to business and seemed about as usual. April 1st he went to church, ate heartily of roast veal and walked in the afternoon. At night complained again, had sickness of the stomach, lay on the lounge all the evening. The next day went to town, ate beefsteak for dinner, but about six o'clock came home and threw himself upon the bed with his overcoat on; didn't feel that he could undress. His feet were cold, he was sick all night and vomited.

At half-past seven the next morning he did not seem stupid, but about nine he seemed to be so. He gradually grew heavier until noon, seemed bewildered, soon became perfectly stupid and continued so. At eleven it was noticed that the right pupil was dilated and the left contracted. At one he could be roused by shouting; his arms were closed, resisting extension. About four ounces of urine were drawn and contained no albumen, sp. gr. 1.038, alkaline. Pulse 64, of good character; respiration easy and normal; temperature 101° in the mouth. He died at two. The rapid change at the last was somewhat unexpected.

At the autopsy the convolutions were found dry and flattened. In the lateral ventricles were six ounces of clear serum. In the choroid plexus, and directly in the foramen of Monro was a soft, grayish rounded tumor, partly of gelatinous character, which broke easily and contained many granules and imperfect cells. The dilatation of the ventricles in this case was very remarkable. After the fluid had escaped they retained their size and form and looked as if dug out of a solid substance.

In the second set of cases there are also two, one reported by Dr. J. Stedman (*Boston Medical and Surgical Journal*, 1883, cix. p. 135), and the second by Wallmann (Virchow's *Archiv*, 14, p. 385)

Case III.—An architect, aged twenty-eight. Has never been very robust; while in college was thrown from a horse, but remounted, and rode two miles without difficulty; had no unpleasant after-effects. For the last year has had occasional severe headaches, and once called things by the wrong names. March 3d he appeared well, worked during the day, and dined with a good appetite. At four o'clock the next morning had a severe attack of headache, for which he took thirty drops of laudanum, repeated in an hour. The headache increasing, he was seen by the doctor, who gave four drachms of ether by inhalation, which quieted the patient and gave natural sleep at eleven o'clock. When seen at half-past twelve he was found to be dead, but this had happened so quietly that those in the room did not know it.

The autopsy by Dr. Fitz showed the cerebral substance anæmic and dry. Lateral ventricles distended with a clear, watery fluid, and one-third larger than normal size. A gray gelatinous tumor, the size of a filbert, was found upon the velum interpositum in the median line, behind the fifth ventricle in the region of the anterior commissure, on a level with the junction of the corpora striata and the optic thalami. The tumor was easily removed from its surroundings, and on examination proved to be cystic with gelatinous colloid contents.

Case IV.—A man fifty years old, a drinker, had bad nutrition, a very slow and uncertain gait, dull and slow speech, and diminished intelligence. There were involuntary discharges from the rectum and bladder, this symptom developing rapidly without

known cause. This paretic condition of the sacral plexus increasing, his lower extremities were finally completely paralyzed. There were increasing mental dulness and a final facial erysipelas.

The lateral ventricles were much distended with a watery serous fluid. The lower and middle horns were very roomy. In the right choroid plexus was a soft, yellowish-white, lobulated growth as large as a bean, which was a lipoma. The upper surface of the thalami optici was much flattened and the two thalami optici pressed away from each other. The fornix was more than an inch wide and pushed upward toward the septum ventriculorum in the form of a convex growth. Beneath the fornix was an oval thick-walled bladder, as large as a walnut, 3.2 inches long, 1.6 inches wide, which arose with its posterior end from the median choroid plexus and was connected with the pia by a delicate membrane and also with the membrane-like distended posterior commissure. The rest of the growth was mostly free. The contents were gum-like and a tenacious, fluid, yellowish-brown mass. The base of the third ventricle was thinned and delicate.

By comparing the first three of these four cases, where the lesion was of the simplest possible character, and probably produced little if any effect by its pressure upon the nervous structures, we find that a uniform and general pressure upon the cerebral hemispheres exerted by the accumulation of fluid in their interior, and rendering them anæmic, gives rise to no local paralytic symptoms, and to but little irritation, but to headache, gradually increasing somnolence rather than coma, and rapid and quiet death.

These symptoms closely resemble those of ingravescent apoplexy resulting from a hemorrhage into the ventricles, which gives rise to very much the same sort of pressure. Indeed, if ventricular hemorrhage were likely to occur without being preceded by a more localized lesion, there would be nothing to give a clew to the nature of the fluid causing the dilatation of the ventricles. It is possible that some cases of so-called "serous apoplexy" may have been of the kind described here, and considering the small size and inconspicuous location of the lesion, that it may have been overlooked during a hasty autopsy, especially if by accident the ventricles became drained before the examiner had fairly reached them.

The distinction from some cases of meningeal hemorrhage where the clot is equally distributed upon both sides, so as to give rise to no unilateral paralyses, would not be very marked.

In the fourth case much direct pressure was exerted by the tumor on the surrounding cerebral substance, and the symptoms were accordingly complicated by a progressive paralysis of the lower limbs.

CONGENITAL CLUB-FOOT. ITS TREATMENT BY OPEN INCISION AND IMMEDIATE RECTIFICATION.[1]

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THE results of the ordinary methods of treating club-foot are so disappointing and unsatisfactory that any operative procedure which holds out the probability of removing or overcoming the difficulties encountered by the surgeon should be hailed with delight.

The vast array of mechanical appliances devised and invented, and the great variety of methods recommended by distinguished orthopædic surgeons for the relief of this deformity, are conclusive proof that no easy, certain, and uniformly successful method has as yet been devised. After most carefully planned and skilfully performed tenotomies—after a trial of all the taliverts and boots that have been devised—after a vain attempt to comprehend and grasp the principles of the various mechanical appliances that have been invented—the young surgeon comes at last to the conclusion that anything like a successful method for the treatment of all cases of club-foot is yet to be found.

It is not alone the young surgeon, but as well those of a riper experience who meet with similar disappointments. In a recent address by one of our most distinguished orthopædic surgeons, I find the following expression: "During the past sixteen years, with an unusually large experience in treating this deformity, it has been my good fortune to witness many excellent results, and I am free to confess that I have had my share of failures."

I have no intention of entering at length into a discussion of the various causes of talipes varo-equinus, nor yet of considering all the methods of treatment that from time to time have been practised or recommended, but shall confine myself to a method which has, in my hands, proved of great service in a certain number of obstinate cases, and which is, I think, capable of further extension.

I will, therefore, only make a brief preliminary reference to the factors, pathological and mechanical, which enter into the production of this deformity, so as to be in a better position to estimate the difficulties to be overcome in its successful management. In 1884, Shattock and Parker communicated to the Pathological Society of London an article on the "Etiology and Pathology of Club-foot." Speaking of this report, Mr. Parker says: "Neither of us was prepared to find the nerve-centres, the nerve-trunks, and the muscles of the

[1] Read before the Section on Surgery of the New York Academy of Medicine, December 12, 1887, with presentation of cases.

afflicted limb in a state of absolute histological integrity; neither of us was prepared to find that, after all the soft parts had been entirely removed from the limb, the deformity would persist in just as marked a degree, and in just as intractable a form as previously to the dissection. Yet such was the case."

I shall not stop to consider in detail the etiological factors that have entered into the developmental production of this deformity. In the ordinary process of its evolution, the limb has met with mechanical restraint, whether due to reflex muscular spasm or intra-uterine pressure, and a consequential failure of the foot to pass through its normal rotation, I will not say. It is only necessary for us to remember in the treatment that, independently of the cause, whether spasmodic or mechanical, the limb is maintained in its distorted position by the shortened soft tissues; and while it is true that the bones are deformed, yet they seldom offer a real obstacle to reduction. The muscles, tendons, fasciæ, ligaments, and even the vessels and nerves are altered in length to correspond with the distorted foot and limb. Every tissue contributes its own share in the production of the deformity. If the skin were removed and stuffed, it would still assume the form of the distorted foot. Hence it follows as a corollary of this proposition that every structure entering into the composition of the limb must receive its proportionate share of treatment.

My intention in this paper is not to enter into a detailed description of the various treatments usually applied to talipes, but rather to enforce the surgical deduction drawn from this presentation of pathological facts.

Adams has very truly said: "The scientific treatment of talipes varus can only be accomplished by a judicious combination of the operative, mechanical, and physiological means, while many of the failures are due to the want of this combination of principles."

Numerous operative procedures have been recommended for the purpose of shortening and facilitating the treatment of this deformity. In 1839, Velpeau[1] recommended, first, the division of the tendo-Achillis, and afterward any other tendons which appeared to be tense and prominent, and seemed to interfere with the restoration of the foot. Then, with a powerful instrument for the purpose, he reduced the foot at once to its normal position. Notwithstanding the extensive laceration due to extreme violence, the results of his treatment were far more favorable than one could have anticipated. This method of *brisement forcé* has lately been attended with considerable success in the hands of Bradford, of Boston, and Wolff, of Germany.[2]

Tarsotomy and tarsectomy have both been strongly advocated by various surgeons, and the latter operation has become so popular that no less than fourteen varieties of this operation have been devised and practised. The writings of Vogt, Lorentz, Besser-Hagen, Roser, Phillipson, and Wolff have demonstrated that tarsectomy alone is inefficient in the reduction of the deformity, owing to the resistance on the inner side of the foot.

In 1883, Vogt showed that after the removal of a cuneiform section on the outer border of the foot, notwithstanding the application of great force, he could not separate the firmly pressed bones so as to bring the foot into its normal position, owing to the strong resistance of the soft parts.

In the article above referred to, Mr. Parker says: "In a not inconsiderable number of cases of club-foot, which I have had the opportunity of dissecting during the past four or five years, mostly in stillborn children at term, but including also three cases in children ranging from six to eighteen months of age, the only constant condition which I have found has been inability to overcome the deformity (even after the removal of the muscles) until some of the ankle and tarsal ligaments have been divided." If it is then true that the short, soft tissues on the inner side of the foot offer the only resistance to the rectification of the deformity, and this I think you will all admit, how shall they best be dealt with.

More than forty years ago, an Edinburgh surgeon laid it down as an axiom in the treatment of this affection, that "whatever structures are tense must be divided." But it was not until 1880, almost in the days of pre-antiseptic surgery, that Dr. A. M. Phelps, with one stroke of the scalpel solved the problem. A report of his first case was published in the *Transactions of the Medical Society of the State of New York* for 1881. In 1884, Dr. Phelps read a paper before the International Medical Congress at Copenhagen, entitled "The Treatment of Talipes Varo-equinus by Open Incision and Fixed Extension," which has not been published in this country.

The open operation has not as yet met with the recognition which it deserves. Its reception in Europe has been more favorable than in America. In a recent conversation with Dr. Macewen, of Glasgow, he told the writer that his method of treating obstinate club-foot was either by open incision or tarsectomy. While in Halle, a few months since, Prof. Volkmann showed me several cases which he had treated in this manner. In Schede's clinic at Hamburg the "Phelphsische operation" has become the universal method of treating obstinate cases of club-foot, and Lorentz has recently recommended a modification of this operation by a circular incision around the lower

[1] Broodhurst. [2] Phillipson: Archiv Chir., February, 1887.

border of the internal malleolus, dividing the deltoid ligament.

The treatment of club-foot by open incision and immediate rectification is exercised on the principle of putting the foot in as good a position as it can be made to assume, with the aid of whatever operative procedures are necessary, and fixing it by means of a plaster bandage until the limb has become accustomed to its new position. At the expiration of six weeks or more the plaster is removed, the foot is again fully rectified and fixed in its improved position for another six weeks, and so on until all tendency to relapse is overcome. The manner in which the plaster dressing is applied should receive special attention, it is to be used not as a correcting force but as a fixation splint. This plan of treatment is not new in principle, but it is the manner of carrying it out that is claimed to be especially advantageous.

The method of my preceptor, the late Dr. Joseph C. Hutchison, was "to apply the plaster of Paris and after applying it, twist the foot round in a straight position and hold it there until the plaster sets. After a week it should be taken off and the foot twisted still further, until you finally get it perfectly straight." This plan I have tried and given up; it is tedious, difficult, and it does not answer its intended purpose. The mode of treatment about to be described will meet every indication and is calculated to supersede all other methods.

A description of the treatment of club-foot will be facilitated by a division of the deformity into the following three classes:

1. Those which can be easily reduced by manipulation.

2. Cases where there are contractures of fasciæ and tendons.

3. Cases where all the tissues are greatly shortened.

It is a common observation that certain cases of club-foot in young children, when handled and manipulated, can easily be placed in a normal position; whereas in other cases in which the deformity is less marked, little can be effected without the aid of the knife. It is only in this first class of cases that manipulation and fixation will lead to a permanent result. In the great majority of cases it is but a waste of time to attempt to treat the deformity without division, at least, of the tendo-Achillis and plantar fascia.

It has been my practice, previous to any operative interference whatever, to subject the foot to a thorough process of manipulation and in this way discover the amount of resistance that it is necessary to overcome with the knife, and at the same time eliminate all fibrous bands and adhesions that readily yield to the force of the hand. All who have had much experience in the treatment of talipes must have observed, that even in the infant under chloroform the clubbed foot, when pressed by the hand or other force, into the best position it can be made to assume, immediately on removal of the pressure springs back into its abnormal position. It is, however, possible by a few minutes' manipulation and pressure so to overcome the resiliency of the tissues, that the foot does not so readily spring back into its old position. If the foot be grasped by both hands of the surgeon and gradually but persistently unfolded and twisted into a normal position, at first it gradually yields and becomes improved in position, but soon the shortened structures on the inner side of the foot become tense and refuse to yield, it now becomes a contest between the muscles of the surgeon and the resistance of the deformed tissues. If the force be steadily continued and even increased, not by fits and starts, but continuously and persistently the soft tissues still further yield, the bony surfaces glide on each other, and the foot assumes a position more nearly approaching the normal than would been thought possible. If at any time during this operation there seems to be danger of fracturing the bones, the force used should be intermitted but not entirely let up. If the operation is well performed, at the expiration of ten minutes or so the elasticity of the tissues seems to be exhausted and the foot lies limp and flaccid, without that tendency to spring back which it had previously possessed. More can be accomplished in ten minutes by manipulation in this way than by ten weeks of plaster dressing according to the old method.

It must be remembered, however, that only the simplest cases can be successfully treated without operation, but this preliminary manipulation should form a part of the treatment of club-foot in all its various degrees. Most cases will require at least division of the tendo-Achillis and plantar fascia, and the general rigidity of the foot should be the guide in determining the further extent to which the tendons, fasciæ, and ligaments need division.

Whenever the tense structures on the inner side of the foot prevent its unfolding and rectification, owing to their short condition, they should unhesitatingly be divided by open incision. In this way the time necessary to a cure is shortened, the tendency to relapse is diminished, and the treatment of congenital talipes is placed on a sound anatomical basis. As Dr. Phelps puts it: "More can be done with a scalpel or tenotome in five minutes than can be accomplished in weeks and often months by all the mechanical appliances known to surgery."

In the second and third classes of cases operative procedures are always necessary. As Dr. Lewis Sayre well says, "contractured tissues cannot be stretched."

The distinction between these two classes of cases should be left to the judgment of the surgeon.

It should be our aim to produce rectification of

the deformity with as little operative procedure as possible. In many cases the subcutaneous division of the plantar fascia together with one or more tendons will be all that is necessary, and after their division the distortion can be reduced. But if after subcutaneous division of these structures the foot cannot be replaced, it is better to perform the open operation and divide the tendon of the tibialis posticus, the internal lateral ligament, and all other tissues which offer resistance to the complete redressment of the foot, if necessary, extending the incision to a linear section of the astragalus and other bones of the tarsus.

Operation.—The method of operation is as follows: thorough antiseptic precautions being observed, so as to secure organization of the blood-clot according to the Morris-Schede method. The foot is rendered bloodless by means of an Esmarch bandage. First, the tendo-Achillis is divided subcutaneously, and the foot thoroughly flexed, so as to overcome the equinus. Then an imaginary line is drawn from the process of the internal malleolus to the tuberosity of the scaphoid bone (Fig. 1). Taking the middle portion of

Fig 1.

Line of incision.

this line, an incision is made downward and slightly backward, across the inner side of the foot, following the direction of the transverse wrinkle for a distance of an inch and a half. The nerve and artery may be protected by being drawn to one side of the wound by means of a blunt hook, which is held in the hand of an assistant. The foot is gradually unfolded, and the shortened and contracted structures are divided as they present themselves and offer resistance to replacement, in the following order: skin, connective tissue, tendons of the tibialis posticus, flexor longus digitorum, abductor hallucis, flexor hallucis longus, together with the internal lateral ligament. A tenotome should then be glided beneath the skin, so as to divide the plantar fascia and the muscular structure of the flexor brevis digitorum. These tissues should be cut by a series of nicks rather than by a prolonged incision. The wound is allowed to fill with coagulated blood, and dressed with Lister's protective, sublimate gauze, and a plaster bandage. The first dressing is allowed to remain four weeks, at the end of which time the wound should be healed.

After-treatment.—After the wound is entirely healed, a water-glass shoe is applied, with which the patient is allowed to walk. The glass shoe, if it does not become wet, retains its shape for six to twelve weeks.

Hausmann, of Hamburg, recommends for the after-treatment a shoe which is made as follows: the toes are thoroughly padded with cotton-wool, then the foot is covered with a woollen stocking. A strip of tin one inch in width is applied along the dorsum of the foot, in order to protect the skin when the shoe is cut off. A sole formed of stiff pasteboard is fitted to the foot, and over this another stocking is fitted. A plaster bandage one and a half inches in width is then applied to the foot, so as to form a shoe extending up to the ankle-joint. While still moist, the plaster cast is cut down the dorsum and sprung off. The shoe thus formed is thoroughly dried in an oven, and covered with leather, so as to make a shoe which can be laced up and removed from time to time.

The following cases, which I introduce to the Section, well illustrate what may be accomplished by this operation.

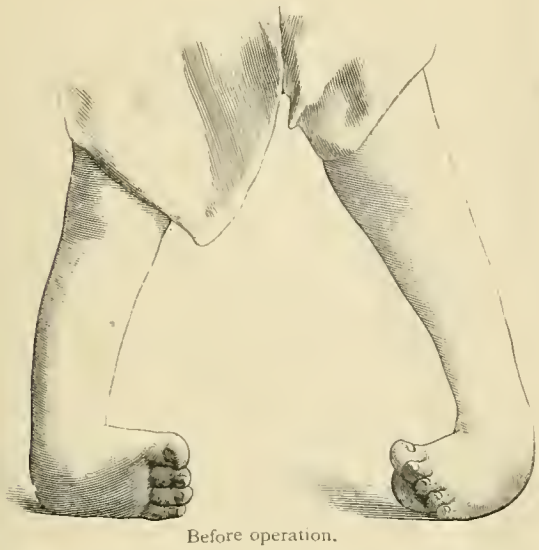
Case I.—Willie C., two and a half years of age, first brought to me on the 21st of March, 1887. The parent stated that when the child was born the feet were markedly deformed and without heels. He was immediately placed under the care of a physician, who put the feet in tin splints, and was thus treated for a period of ten months, but without any material benefit. He was then taken to an orthopædic institution in New York, where the heels were operated upon and a pair of braces applied; with these he was treated, the mother said "tortured," for a period of eighteen months.

When first presented, the feet exhibited a very severe form of talipes varo-equinus, which was further aggravated by inward rotation, or rather hyper-inverted position of the limbs, with slight bowing of the tibiæ. The child walked on the dorsal surface of the feet, where several well-marked bunions had formed. The condition before and after operation is well represented in Figs. 2 and 3.

By firmly grasping the foot and exerting for a few minutes considerable force the position could be somewhat improved, but on relaxing the grasp it immediately sprung back into its distorted position. Phelps's operation was performed on March 26th, assisted by Drs. M. D. Jones and C. A. Canfield.

Division of tendo-Achillis and rectification of equinus. Open incision and division of all the contracted structures. In one foot I also made a linear section of one

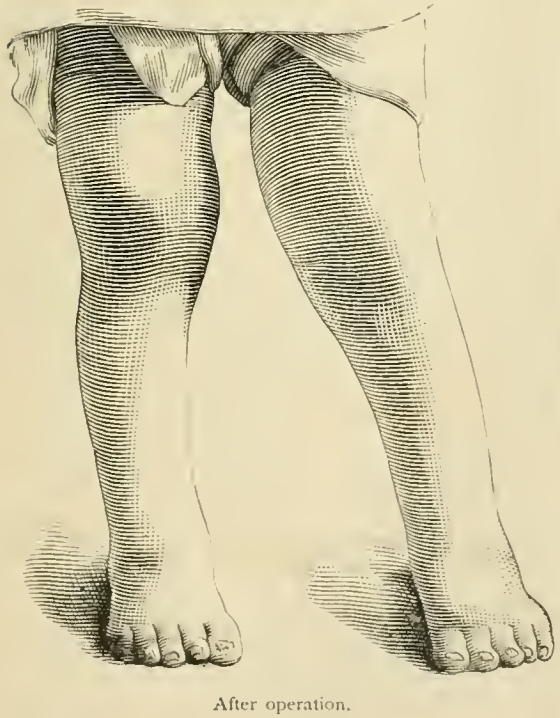
Fig. 2.



Before operation.

of the bones of the tarsus. The foot was placed in the reverse position and dressed with protective bichloride gauze and plaster bandage. No constitutional disturbance whatever followed the operation.

Fig. 3.



After operation.

May 10. Dressings removed, foot in good position, wounds not entirely healed.

17th. Feet redressed, wounds entirely healed. Up to the present time the water-glass splint has been applied three times, and for several weeks during the summer they were without any support whatever. At present the feet show good size, shape, and function. The inversion of the tibiæ still exists.

Case II. (Case presented.)—Tommy S., aged five years, was brought to the hospital May 5, 1887. He presented a well-marked example of double equino-varus, which was congenital. According to the mother's statement, when nine months old he was operated upon by a surgeon who cut both tendo-Achillis. At first he was treated with plaster splints, but during most of the time has worn braces, which have been changed from time to time as the feet increased in size, but with little improvement. Thus during a period of four years he has undergone constant treatment at the hands of a distinguished orthopædic surgeon in one of the Brooklyn dispensaries.

State on examination.—The feet were rigid, inverted, and the inner side very much shortened. The use of the braces had produced large bunions and excoriations on several of the prominent parts of the limbs.

Operation May 6, 1887. Under an anæsthetic and assisted by Drs. M. D. Jones and A. M. Phelps—the latter had recently removed to New York—I divided subcutaneously the tendo-Achillis and by open incision all the tense structures on the inner side of both feet. After dressing, the feet were put into Phelps's machine and the plaster moulded into position.

June 2. Dressed, wounds healed and feet in good position. Patient has continued to wear the water-glass shoe with the exception of a few weeks while at the seaside during the summer.

October 20. Fixed shoe applied; good size, shape and function of feet.

I am much indebted to Dr. Phelps for treatment of this case during an absence in Europe.

When we consider that during a period of eight months these cases have been seen by the surgeon, at most only five or six times, I think we may very properly ask ourselves, is there any other operative procedure that will produce as good a result as is shown by these cases, with the same expenditure of time and trouble on the part of the surgeon? I cannot more appropriately close this paper than by quoting the words of Professor Gibney, used in a recent address: "I would have the conclusion drawn that the successful management of this deformity depends upon the close study of individual cases, on a clear anatomical diagnosis, and on a faithful adherence to whatever method is adopted, recognizing and fully appreciating the difficulty in securing at all times the hearty coöperation of the parents. I would have a conclusion drawn that that method should be adopted which depends the least upon this coöperation for success."

HOSPITAL NOTES.

JEFFERSON MEDICAL COLLEGE HOSPITAL, PHILADELPHIA.

A Case of Hysterical Trismus.

Reported by Orville Horwitz, B.S., M.D.,
chief of the outdoor surgical department, and demonstrator of anatomy in jefferson medical college.

The patient, who was a thin, nervous woman, aged twenty-three years, by occupation seamstress, when brought to the hospital was suffering from trismus, presumed by her attending physician to be due to inflammation of the temporo-maxillary articulation with the resulting formation of artificial bands, a sequence of tonsillitis.

Five months previous to presenting herself she had an attack of acute tonsillitis, which ran the usual course, but was followed by rigidity of the temporo-maxillary joint; the upper and lower jaw being separable to the extent of about one-quarter of an inch. This condition continued until she applied for treatment. She had subsisted entirely upon liquid food, and consequently was weak and emaciated. Owing to her presumed inability to open the mouth, the tonsils and fauces could not be examined.

After careful examination of the case, the writer arrived at the conclusion that it was one of hysteria. The patient was told that if she would allow herself to be placed under the influence of an anæsthetic a slight operation would be performed whereby she would be completely cured; to this she cheerfully consented. As soon as she lost consciousness the mouth opened, and, on examination, the throat was found to be in a normal condition. A mouth-gag was inserted and allowed to remain until the effects of the ether had worn off, that the patient might see that the jaws had been completely separated. When consciousness was fully restored, she opened and shut her mouth without difficulty.

A tonic was prescribed, and she left the hospital with expressions of gratitude for the relief that had been afforded her.

MEDICAL PROGRESS.

The Treatment of Retained Placenta at the Rotunda Hospital, Dublin.—In the *Practitioner* for December, 1887, Dr. Lane describes the method pursued at the Rotunda Maternity as follows: When the placenta is adherent I believe the proper treatment is to pass the hand or fingers into the uterus and detach it, although I have been informed that some Continental obstetricians allow the placenta in such cases to remain for even a month after delivery (unless there is hemorrhage or symptoms of septicæmia), especially in the cases where the patients have not come to their full time. I consider, however, that if the operator's hands be not perfectly aseptic, this is the most dangerous of all operations met with in midwifery practice, except the Cæsarean section. It has been recommended by some authorities to keep the fingers inside the membranes during the operation, but there are many cases met with where, owing to the friable nature of the placenta, necessitating the removal of small pieces at a time, this is impossible. Should there be any septic infection about the hand, and especially about the nails, the usual seat of such poison, I failed to see how such a patient can escape becoming infected; for it is analogous to vaccination, except that virulent poison is substituted for healthy lymph, and with unfortunately greater likelihood of its taking effect, owing probably to the prolonged contact. The uterus, except where it has been already douched out with the hope of getting the placenta away, as I have already mentioned, is always douched with antiseptic solution prior to introducing the hand. Although the left hand is recommended by many as being smaller and corresponding more with the pelvic curve, the right hand is the one generally used, for, the patient being in the obstetrical position usual in this country, the fundus of the uterus can be better and more easily supported by the left hand (the operator standing at the patient's back). Nor can an assistant, no matter how experienced he may be, support the uterus so satisfactorily as the operator himself, who knows the exact part of the uterus requiring pressure so as to bring that particular part of the uterine wall nearer to the introduced hand, and who is able to remove it to some other part the moment required.

An anæsthetic, usually chloroform, is nearly always administered, in order that, if necessary, the hand may be passed in a second time where doubt exists whether all the placental tissue has been detached; for if the patient be perfectly conscious of what is being done, the operator must be very resolute to be able to withstand her solicitation not to pass the hand a second time, and I consider that, once the hand is introduced, the operation should be persevered in to entire completion. When satisfied on this point, the uterus should be again douched out with antiseptic solution.

The Treatment of Headache Caused by Chronic Pharyngitis.—Vergely recommends the following application to the throat, by a camel's hair pencil, followed by a gargle of warm, salt water:

Glycerin.,	
Tinct. iodin.,	
Aquæ destill.	āā ♏ 75.
Potass. iodid.,	
Cocain. hydrochlor.	āā gr. 7½.

In general treatment quinine, in 8 grain doses, with 30 grains of potassium bromide, was given. Aconitine or morphia may also be employed.

When anæmia is present the following pill may be used to advantage:

Ferri oxalat.	gr. 1½.
Ext. rhei	gr. ½.
Ext. nucis vom.	gr. $\frac{1}{20}$.

—*Revue Générale de Clinique et de Thérapeutique*, December 22, 1887.

Solvin.—Kobert, of Dorpat, in the *Therapeutische Monatshefte* for December, 1887, describes under the name *solvin* a substance produced by the action of sulphuric acid upon glycerine-ether, as in the action of the acid upon oil of almonds and castor oil. This substance has been recently introduced as a solvent for iodoform, naphthalin, salicylic acid, salol, and a great variety of substances. It is a clear, oily liquid, capable, in very

small quantities, of forming emulsions. Kobert's experiments upon animals have shown that solvin possesses poisonous properties, and that it should be introduced into the organism with caution.

The Treatment of the Throat in Diphtheria.—DR. BARUCH, of New York, in the *Medical Record* of December 24, 1887, describes his mode of treatment as follows:

Disinfection of the throat is best accomplished by the frequent internal administration of tonic, astringent, and antiparasitic remedies; not by the brush, probang, or atomizer. Neither water nor food should be permitted for ten minutes after the medicine has been swallowed, thus allowing it to bathe the diseased surfaces. When the patient is tractable and willing to aid the attendant, I advise the hourly application of a fifteen per cent. solution of trypsin. In one case a ten per cent. papayotin solution proved equal to trypsin, but much more expensive. In nasal diphtheria the trypsin solution is invariably prescribed, to be applied hourly with the medicine-dropper or soft brush, because this can be accomplished without damaging the mucous membrane even in an intractable child. It softens and pulpifies the false membrane, and facilitates its removal by injections of salt water, or 1 : 10,000 bichloride, which in this dangerous form I order applied at frequent intervals. It will appear, therefore, that while I abstain from local treatment in most cases of faucial diphtheria, I apply it vigorously, but gently, by the brush and soft rubber-tipped syringe in all cases of nasal diphtheria. When the air-passages are involved I also resort to local treatment by inhalation of the vapor from boiling lime-water impregnated with oil of turpentine—one ounce of the latter to one quart of the former, used continuously. Properly applied, these inhalations have aided me in saving several of my patients from tracheotomy.

Purgation after Abdominal Section.—MALCOLM, Assistant Surgeon to the Samaritan Free Hospital for Women, publishes in the *Lancet* of December 24, 1887, the following notes of a case of abdominal section, for ovarian tumor:

Sir Spencer Wells went abroad on the third day after the operation, leaving me in charge of the case. On the evening of the third day, and all through the fourth day, there was a tendency to sickness and abdominal distention, but flatus passed freely from the rectum. On the fifth day that portion of the bowel was found to contain feces, and a small enema produced a copious evacuation, after which the feeling of sickness and the distention passed off. The action of the bowels was followed by considerable pain in the right groin about the position of the pedicle, and the temperature rose in a few hours to 100° in the axilla, but again gradually fell to 98° on the seventh day after operation. The bowels moved seven times between the fifth and tenth days, and much flatus also escaped. During this time, however, the pain in the right groin increased, until the patient could not bear the slightest pressure over this part. The rest of the abdomen became slightly distended, but was free from tenderness. The administration of one-sixtieth of a grain of atropia and one-twelfth of a grain of muriate of morphia, repeated every four hours, eased the pain; but the appetite became very bad, and the patient felt constantly sick after the eighth day. She also lost strength, and her pulse, which had been down to 84 and of good character, gradually rose to 100, and became very feeble. On the tenth day her temperature, which had not been above 98.6° for two days, also began to rise a little, and reached 99.6° in the axilla at 9.30 A.M.; she had been very restless all night, could not take any food, and felt very sick, while the abdomen had become more distended. This grouping of symptoms after abdominal section I have learned to associate with obstruction in the bowels, which may lead to a rapidly fatal termination of the case. In the belief, therefore, that my patient was in extreme danger from this cause, and that the best method of treatment of this condition at this stage is by the administration of a purgative, I gave her a pill containing one-third of a grain of calomel and as much jalap, one grain of compound extract of colocynth, one grain of extract of aloes, one-twentieth of a grain of jalapine, and a little ginger. The patient had frequently used similar pills, prescribed by her own medical attendant, Dr. Morley, of Blackburn, and they had moved the bowels gently during health. On this occasion the pill produced two small loose motions, and a dose of Hunyadi water, given next morning, was followed by other loose motions. The last of these was at 5 P.M. on the eleventh day after operation. Twelve hours after the pill was given the temperature had risen to 100.6° in the axilla, perspiration was extremely profuse, and the patient had become alarmingly weak, but she was then able to take food without feeling sick. After the bowels were quiet twenty minims of tincture of opium were given by the rectum, and the patient had a good night's rest. She was much stronger next morning, and this improvement continued. The pain in the right groin, however, became more severe, and the tenderness radiated over the abdomen to some distance from this part. The temperature continued feverish but irregular till the thirteenth day, when it fell to normal and remained so. On this day also the pain shifted upward and toward the right loin, and next morning there was only slight tenderness on pressure in the groin and none in the loin. Now, however, the patient at once complained of pain when I applied pressure over the colon in the region of the gall-bladder. The seat of tenderness afterward shifted from time to time along the course of the colon, and finally was found low down in the left groin on the fifteenth day after the operation. The bowels had then been quiet for four days, and I warned the patient that she would soon have an action of the bowels with considerable pain. That afternoon several large, very hard fecal masses passed into the rectum, whence they were removed with some difficulty by the nurse, after which recovery was uninterrupted.

A Laxative Gastric Tonic.—BARDET has used to advantage:

Ext. fluid. cascara sagrad. . . .	ʒ 5.
Tinct. nucis vom.	♏ 30.
Aquæ destil.	ʒ 28¾.
Syrup. simpl.	ʒ 3¾.—M.

Sig. Dose, a teaspoonful.—*Journal de Médecine*, December 18, 1887.

Movable Kidney.—DR. GRANT, of Melbourne, concludes an extended article in the *Australian Medical*

Journal of November 15, 1887, upon this subject, as follows:

1. That mobility of the kidney, even though slight, is no mere anatomical curiosity, but a condition of real clinical importance, producing serious disturbances of function in various organs.

2. That it produces its effects chiefly by reflex irritation of these organs through the sympathetic centres, and but little by its mechanical action.

3. That the irritation may influence the sensory, motor, or secretory functions of the organs affected.

4. That variations in the character and intensity of the symptoms may be accounted for by variations in the intensity of the irritation, a minor intensity stimulating, and a major intensity paralyzing, certain reflex centres.

5. That the so-called strangulation of the kidney is probably due, not to a mechanical or inflammatory obstruction, but to sudden and extreme intensification of the irritation.

6. That in all cases of obscure abdominal pain, a systematic search for a movable kidney ought to be made.

7. That a certain peculiar localization of intestinal disturbance forms presumptive evidence of movable kidney.

8. That the diagnosis rests on palpation, the results of inspection and percussion being of no value, and the rule usually given as to the latter being probably contrary to the fact.

9. That, as the condition does not threaten life, and is not inconsistent even with great longevity, no operation involving danger to life is justifiable.

10. That mechanical appliances may palliate, but cannot remove the symptoms.

11. That the rational treatment consists in endeavoring to restore the natural pad of fat, and in diminishing the reflex irritability, and that for the latter purpose codeia is peculiarly adapted, on account of its special power of lessening the irritability of the afferent fibres in the nerves of the abdominal viscera.

The Bacteria of Whooping-cough.—Aphanasieff, a Russian observer, has found in the sputa of those having whooping-cough short, small bacteria, which, when inoculated into the respiratory passages of puppies and rabbits, produced an affection almost identical with whooping-cough. They always settled themselves in the trachea and bronchi of animals, and were found in the lungs of children who died of whooping-cough. The name *bacillus tussis convulsivæ* was proposed.—*Le Bulletin Médicale*, November 20, 1887.

A Case of Endolaryngeal Epithelioma, Destroyed by the Galvano-cautery with Success, Twenty Years ago.—Schnitzler is quoted by the *British Medical Journal* of December 17, 1887, in an article on the diagnosis and treatment of endolaryngeal neoplasms, in which he relates the case of a woman in whom he had destroyed an epithelioma of the larynx by the galvano-caustic method twenty years ago, and who was still living. The diagnosis of epithelioma had at the time been fully confirmed microscopically by very competent and trustworthy pathologists. He was nevertheless afraid that, on hearing the case, some might be disposed to make the usual comment referred to in the following remark of Ducarques: "Le cancer est incurable parcequ'on ne le guérit pas ordinairement; on ne peut le guérir puisqu'il est incurable; donc quand on le guérit, c'est qu'il n'existait pas." The following are the details of the case: E. L., an actress of Prague, twenty years of age, was, in January, 1867, admitted into the clinic of the late Prof. Türck, of Vienna, for persistent hoarseness. Prof. Türck stated that vegetations of the vocal cords were the cause of the voice affection. Repeated operations performed by him with the knife (in February and June, 1867) were only temporarily successful. When the patient came, some months later, into the clinic of the late Prof. Oppolzer, she was almost absolutely aphonic, and also complained of considerable difficulty of breathing. Prof. Schnitzler, who was then assistant to Prof. Oppolzer, found that the vocal cords were much swollen, and detected the presence of red vegetations of a granular appearance at their inner side. The vegetations almost filled up the rima glottidis. In spite of the youth of the patient, Prof. Schnitzler diagnosticated epithelioma, and immediately removed the vegetations, which already threatened to suffocate the patient. The first piece of a large size (of the size of a cherry-stone) which was removed by the galvano-caustic loop, was microscopically examined by Drs., now Professors, Biesiadecki and Scheuthauer, then assistants of Prof. Rokitansky. Both these experts pronounced the growth to be epithelioma. Prof. Schnitzler afterward heard that Prof. Türck had also at once made the diagnosis of epithelioma, and that his diagnosis had been confirmed by the microscopical examination of Prof. Wedl. Prof. Schnitzler had repeatedly destroyed the disease by galvano-cautery, and was happy to be able to show the patient at the meeting of the Imperial Royal Society of Physicians of Vienna on October 16, 1868, as being cured, that is to say, as far as we are entitled to speak of the cure of epithelioma. The patient was still hoarse, but her voice could already be distinctly heard, and the dyspnœa had completely disappeared. No trace of the growth could be discovered (see Report of the Society of Physicians of October, 1868). The patient remained under the observation of Prof. Schnitzler for some years longer, and he thought it possible that she might have lived for ten years after the operation. Before, however, he published the case, he wished to obtain exact particulars as to the patient's fate, and, therefore, applied to the physician who had in the first instance sent the patient to him. To his great surprise he learned that she was still alive, and that the physician had seen her only recently at Prague, twenty years after the laryngeal epithelioma had been destroyed. Prof. Schnitzler went on to ask if it was possible that such excellent microscopists as Biesiadecki and Scheuthauer could have made a mistake. He could not believe this, as their diagnosis was quite positive. After all, why should not recovery take place after the galvano-caustic destruction of an epithelioma, as well as after an extirpation with the knife? The possibility of curing some kinds of carcinoma was, as is well known, admitted by Rokitansky.

Adulterations of Antipyrin.—The *British Medical Journal* of Dec. 17, 1887, remarks that recent investigations have shown that antipyrin is frequently adulterated with benzine and phenylhydrazine. Antipyrin does not change litmus paper; it is easily soluble in water, alcohol, and

benzine; it is also soluble in chloroform and glycerine, but not so quickly. Treated with picric acid, chloride of gold or platinum, antipyrin gives a yellow precipitate; with perchloride of iron a blood-red precipitate is obtained; nitrous acid produces a green precipitate, and permanganate a blood-red precipitate. The presence of phenylhydrazine in antipyrin is shown by the reduction of Fehling's solution. The presence of benzine is detected by Berthelot's process. Antipyrin is mixed with nitric acid; ether is added; the liquid is then filtered and distilled; chloride of lime is added, and if the antipyrin contains benzine, the mixture assumes a violet hue.

Iodide of Sodium in Phthisis.—POTAIN has found the following a convenient formula:

Aquæ destillat.	ʒ 25.
Sodii chlorid.	ʒ 2½.
Sodii bromid.	grs. 75.
Sodii iodid.	grs. 38.

A dessertspoonful in the morning, in a glass of milk. This combination contains the salts found in cod-liver oil, and is of value in the treatment of the scrofulous and those in whom tubercular disease pursues a slow course. —*Revue de Clinique et de Thérapeutique*, December 8, 1887.

Aceto-tartrate of Aluminium, a New Antiseptic.—ATHENSTALDT prepares this substance by mixing a solution of 5 to 100 of acetate of aluminium and 2 to 100 of tartaric acid; the double salt formed is obtained by evaporation. The aceto-tartrate of aluminium is a brilliant, colorless mass resembling gum arabic in appearance. It has an odor of acetic acid, and dissolves readily in water. Its taste is acid, slightly astringent, not disagreeable. It dissolves in equal parts of water; the solution remains clear when heated. It is precipitated by alcohol. Its chemical composition is that of a double salt. When exposed to the air it becomes less soluble, through the loss of a portion of its acetic radicle. It is an innocuous antiseptic.—*Journal de Médecine*, December 18, 1887.

The Treatment of Epistaxis by Hot Water.—The Paris Correspondent of the *British Medical Journal* of December 17, 1887, writes that DR. ALVIN, consulting physician at Mont-Doré, recently treated a case of serious epistaxis by irrigation. The bleeding came from the right nostril. The blood trickled through the plugs, and forced its way through the puncta lachrymalia. The nose was swollen, owing to the collection of blood in the nasal fossæ. The dressing was removed. The blood flowed abundantly. Irrigation was performed with water at 65° to 70° C. (149° to 158° F.) by means of an English irrigator. The water returned through both nostrils and through the throat. In two or three minutes the bleeding was checked. The operation was not painful, notwithstanding the high temperature of the water; it was repeated twice during the evening. M. Alvin concludes that irrigation with hot water is an efficient, safe, and painless method of treating epistaxis. The patient should be watched for ten hours after the operation, in case it may be necessary to repeat it.

Two Successful Porro Operations.—PETERS, assistant to Gustave Braun, of Vienna, reports two successful Porro operations for osteomalacia. One child was stillborn; the other died fourteen days after birth from intestinal catarrh. — *Wiener medicinische Presse*, December 18, 1887.

Caffeine Intoxication.—GUILLIOT, in the *Revue Générale de Clinique et de Thérapeutique* of December 15, 1887, describes the "coffee sot" as follows:

The skin is pallid, yellowish, and slightly cadaveric. The face is that of a person prematurely aged; when coffee is used to great excess it is slightly swollen. The body is emaciated, muscular atrophy being present in marked degree. The eyes are brilliant, the pupils somewhat dilated and lacking in expression; the tongue, the lips, and the facial muscles about the mouth are tremulous, and present a characteristic appearance. In 23 cases the following disorders were found, which could be ascribed to coffee. Anorexia in 18 cases; disordered sleep in 16 cases; tremors of the tongue and lips in 16 cases; leucorrhœa in 12 cases; gastralgia in 11 cases; dyspepsia in 10 cases; various neuralgias in 10 cases; cephalalgia in 8 cases; vertigo and convulsive attacks in 4 cases; persistent constipation in 4 cases; constipation alternating with diarrhœa in 3 cases. In treating these cases it is best to stop the use of coffee at once, if the patient will consent; troublesome insomnia may follow, but this must be met by sedatives. The general treatment is tonic and hygienic.

Sodium Fluosilicate, a New Antiseptic.—DR. HAYWARD describes this newly introduced substance as follows, in the *British Medical Journal* of December 24, 1887: Sodium fluosilicate, the new antiseptic which has recently been coming into use, promises to prove an equally effective and much safer substitute for corrosive sublimate in midwifery practice. It is but slightly soluble in water, only to the extent of about two-thirds per cent. at 60° F.—that is, a pint of water will dissolve about fifty grains. It should be used in saturated solution. A few powders of fifty grains each will form but a trifling addition to the weight of the midwifery bag.

Antipyrin in Solution.—The following has been found a convenient formula for a solution of antipyrin:

Antipyrin	gr. 75.
Aquæ destill.	ʒ 20.
Rum	ʒ 5.
Syrup. limon.	ʒ 7½.

Each teaspoonful contains between 2 and 3 grains.—*Journal de Médecine*, December 18, 1887.

The Treatment of Lacerated Perineum at the Dublin Maternity.—DR. LANE describes, in the *Practitioner* for December, 1887, the treatment employed in the Rotunda Hospital as follows:

When the perineum is lacerated over three-fourths of an inch in extent, the practice is, having douched out the vagina with antiseptic solution, to suture immediately either with silk or catgut (using in the latter the continuous suture).

The results have been very satisfactory, chiefly owing, he thinks, to the stitches being inserted deeply so as to bring the whole of the torn surface into apposition. For if this be not done the lochia would probably collect

between the edges of the wound, causing them to become unhealthy, especially should the discharge be fetid, and this unhealthy condition when once produced is very likely to go deeper, until possibly it might invade the whole depth of the perineum, causing the stitches to slough out, and the wound to gape widely open. Dr. Lane considers that a patient whose perineum has been lacerated in the first confinement (especially if the child were large), and that it has afterward united properly, is much less likely subsequently to suffer from relapse than if the perineum remained intact, for in the latter case it would show that the parts were very relaxed.

Strophanthus.—Haas, of Prague, concludes, from his clinical study of strophanthus, that the apex beat of the heart is much less distinct under the influence of strophanthus than under the influence of digitalis: the latter drug produces a sharply defined pulsation, while strophanthus does not so clearly mark the boundaries of the cardiac area, which becomes diffuse.

In cases where an exaggerated second pulmonary sound is present, the accentuated quality disappears under the use of strophanthus. The frequency of the pulse is, in the cases described, regularly lessened.

In three cases of stenosis of the cardiac apertures of high degree, the patients became cyanotic after taking strophanthus, complained of great dyspnœa, and went into collapse.

Haas found that patients suffering from fever bore much larger doses than those who had no fever; fifty drops of the tincture and more were given to fever patients without ill effect, while thirty drops, in twenty-four hours, was the usual dosage for patients not suffering from fever.—*Therapeutische Monatshefte*, Dec. 1887.

Trephining for Meningeal Hemorrhage.—A female patient, aged twenty-six, was admitted under the care of Mr. Croft, in St. Thomas's Hospital, about midnight on Dec. 11th, in a semi-comatose condition. She was supposed to have been knocked down and kicked by a horse. There was a scalp wound, not leading down to bone, behind and below the left parietal eminence. There was no evidence of fracture. During the night she passed into a state of absolute coma, and in the morning had complete paralysis of the right arm and leg, but not of the face. Mr. Croft trephined in the situation of the wound, removing about two ounces and a half of somewhat granular clot, which was spread out for some distance between the dura mater and the bone. The hemorrhage was from some vessels in the dura mater (probably posterior branches of the middle meningeal), and could only be arrested by pressure. About six hours later the power of movement returned in the right side, and her condition gradually improved. She spoke for the first time after the injury on the 13th. Although not yet recovered, she is still restless at times, and impatient of control; there is no paralysis, the wound is quite aseptic and healing, and the improvement continuous. A severe contusion of the groin was, however, followed by sloughing and cellulitis, for which incisions were required.—*Lancet*, December 24, 1887.

Chlorine Water in Ulcers of the Pharynx.—Dr. Wise, in the *Maryland Medical Journal* of December 31, 1887, describes the case of a child whose tonsils, uvula, and pharyngeal space were covered with yellowish-white ulcers. The mother was apparently suffering the most; her tonsils were literally covered with ulcers, scarcely any normal gland tissue visible, while the pharynx and uvula were dotted with ulcers of various sizes from the palate to the surface opposite the trachea—very offensive breath and swollen cervical glands, headache, and severe pain upon deglutition.

After a gargle of permanganate of potash, insufflated calomel and chlorate of potash 1–3, I prescribed the following solution:

R—Potassii chloratis . . .	℥ss.
Acidi hydroch.	℥j.—M.
When gas formed ad.	
Aquæ	℥iv.
Quiniæ sulph.	℥ss.

Sig.—A tablespoonful every four hours in a half glass of cold water, and dose proportionate to ages of children. Also, Tr. ferri chloridi, gtts. xx, every four hours.

In forty-eight hours the throat was perfectly clear—mucous membrane normal in color, with a healthy granulating surface at base of ulcers, and almost healed.

With the change of the solution, by adding the iron thereto, I have found its action in diphtheria equally satisfactory.

Rodent Ulcer of the Rectum.—Dr. Norton, in the *Medical Press and Circular* of December 14, 1887, describes his treatment of this affection as follows:

Among poor people when the ulcer has existed some few years, it is probable that the patient has already been treated at more than one hospital, and, as in doubtful cases of cancer, syphilitic treatment has had a fair trial, but without any success. It is clear that nothing but a destructive treatment can be of service; one may, therefore, employ a solution of pernitrate of mercury or of chromic acid, or the ulcer may be scraped, or the question arises whether it is advisable to remove the whole surface by a very shallow excision; in order to overcome the stricture the usual methods of treatment are employed, namely, the bougie, sudden dilatation, and incision. Dr. Norton has used the mercurial solution with advantage in these cases, though he does not claim to have cured the disease, and he has also used it with markedly good results in cases of epithelioma of the palate and pharynx, with unmistakable relief and retardation of the growth. He thinks this method of treatment in epithelioma, where it is difficult or dangerous to excise, has not been sufficiently practised by surgeons, and he sees no reason indeed why, with cautious and continuous application of selected escharotics, the growth should not be destroyed almost as completely as by removal with the knife. He has scraped the ulcerated surface, but find it difficult by this means to remove all that he desires. The cases in which he performed colotomy were treated by gradual dilatation for greatly constricted passage, and in all these the operation was resorted to because the passage of the bougie gave rise to an irregular rise of temperature, characteristic of septicæmia. Immediately after the operation the temperature subsided. Of these three cases one was soon lost sight of, the other two are still alive, one after a space of about five years, and the other two years. One continued her employment as a servant of all work for some years, the other, who is a married woman, has been incapacitated from work the whole time.

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EXTRAPERITONEAL EXPLORATIVE SECTION.

EXPLORATIVE incision of the abdominal walls has become one of the most common of all operations; in fact, almost all abdominal operations may be called exploratory, as it is impossible to foretell exactly what will be found. The simple exploration of the abdominal cavity for diagnostic purposes is attended with but little danger, and yet it must be admitted that the opening of the peritoneal cavity for this purpose ought to be avoided when possible.

At the Second Congress of Russian Physicians, PROF. W. SNEGUIREFF recommended exploration of the abdomen by means of incisions which did not go through the peritoneum, and subsequently BARDENHEUER published a communication upon the same subject in the *Deutsche med. Wochenschrift*, No. 13, 1887; and, recently, DR. A. VON GUBAROFF has presented a short paper upon extraperitoneal exploration in the linea alba, in the *Centralblatt f. Chirurg.*, No. 47, 1887.

Bardenheuer recommends the extraperitoneal exploration because it is less dangerous on the one hand; and, on the other, a large proportion of abdominal tumors are situated either extraperitoneally, or at least can be grasped much better from behind. It was found that the peritoneum could be easily separated for a large space without becoming gangrenous, and that by so doing, it became possible to examine and even remove tumors. This principle is not new, only its application has been somewhat extended, for all surgeons are familiar with separation of the peritoneum in the ligation of the iliac arteries, the removal of the kidney, the sectio alta, etc.

Bardenheuer describes three forms of extraperitoneal incision, the renal, the hypogastric, and the thoracic. The renal incision was found of value, not only for the removal of retroperitoneal tumors, but for palpation of the liver, head of the pancreas, the duodenum, colon, cæcum, and spleen. The hypogastric incision is made in a transverse direction above the symphysis, and is useful for the removal of calculi or tumors from the bladder. He has removed myomatous and carcinomatous uteri several times, and an extrauterine fœtation, almost extraperitoneally; and thinks the Cæsarean section may be performed in the same manner. The thoracic incision follows the bony boundaries of the thorax, and allows the detachment of the peritoneum from the tendinous centre of the diaphragm, without tearing.

Sneguireff and Bardenheuer each recommend lateral incisions for diagnostic purposes, but von Gubaroff pleads for section in the linea alba. He says the peritoneum can be readily detached to the extent of an inch on each side of the linea alba, and its elasticity permits an examination of almost the whole peritoneal cavity. He recommends it as a preliminary act in all cases of diagnostic laparotomy, because it is devoid of danger; and if the serous membrane is torn, the usual exploratory operation can be immediately performed. We present these views because the method seems to have a certain range of usefulness, but most surgeons will prefer to have the advantage of inspection as well as of palpation in those cases in which the diagnosis is obscure.

THE TREATMENT OF PULMONARY TUBERCULOSIS BY CREASOTE.

IN the *Medicinische-Chirurgische Rundschau* for June, 1887, is a communication by SOMMERBRODT, of Breslau, on the use of creasote for the treating of phthisis. In this paper are reports of no less than five thousand cases treated in this way, during a period of nine years, all the patients being still able to be about. Using the formulæ devised by Bouchard and Gimbert he obtained no less than twenty-seven recoveries out of every hundred cases.

The formulæ were chiefly as follows: 15.3 parts of creasote to a quart of alcohol or Malaga wine, and 2 parts of creasote to 150 of cod-liver oil. From 3 to 5 minims of these two mixtures were taken daily, and in some instances he also used

creasote 3.5 parts, alcohol and water each 125 parts. Of the last as much as a teaspoonful was ordered twice daily in a glass of water.

Another method consisted in using gelatine capsules, after the manner of Reuss, each of which contained three-quarters of a minim of creasote and 3 minims of balsam of tolu. For the first twenty-four hours the patient took one, after that two, and for the succeeding eight days three in each twenty-four hours. When two weeks had passed the dose was increased to four capsules, next to five capsules, and in the fourth week as many as six capsules were given daily. Only in rare cases was the remedy badly tolerated.

When given to young persons the results were better than when administered to older ones, and climatic changes were also productive of very good results when combined with the use of the drug. Naturally it was noted that incipient cases were more improved than those cases which had already run a long course. In those instances where scrofulous glandular affections seemed largely present, this treatment was particularly successful, the irritable cough was relieved, narcotics were no longer required, and both bronchial and cutaneous secretion diminished. The action of creasote is, however, most slow, three months or a year being required before any great change can be expected.

The *Berliner klinische Wochenschrift* of July 6, 1887, also contains a discussion of the paper of FRÄNTZEL on the same subject by such men as GÜTTMANN, THORNER, LUBLINSKI, and ROSENHEIM, in which evidence was brought forward that this method of treatment is not so universally valuable as might be hoped.

SOMMERBRODT, in the *Berlin. klin. Wochen.* of November 28, 1887, defends his first paper, as far as defence is necessary, and evidently believes that very minute doses of creasote, such as have been used by some clinicians, are valueless.

The treatment of phthisis by creasote seems, from the results so far reached, to be at least worthy of further trial, and may be tried with advantage, perhaps, in those cases where other remedies seem valueless, or for some reason are contraindicated.

INACCURACIES IN THE HISTORY OF SPLENECTOMY.

IF statistical records of surgical cases are to have any value, they should, at least, represent the facts and exclude the fabrications, or erroneous statements of the past. No tabular record can be received with entire confidence unless the searches are known to have been made *de novo*, and from the original sources of information. And we must confess to being very sceptical about the carefulness of much of our statistical work, having so often detected inaccuracies when least expecting them. Fortunately for those who prefer to trust to their own labors, rather than to those of others, the large library of the College of Physicians of Philadelphia, and the still larger one in the Surgeon-General's Office, in Washington, furnish the means of consulting nearly all of the original publications that may be required; the few that must remain being attainable through correspondents in the older collections of European libraries.

Our literature shows how much more easy it is to perpetuate an error than to eradicate it after it has been copied and recopied, time and again. In illustration of this, we will take up the subject of splenectomy, confining our remarks to the extirpative operation for disease or displacement of the spleen. This is generally supposed to be a very ancient operation, and would be, if we could credit the original sources of information, but here is where we fail to be at all satisfied, and after weighing all the claims, come at last to the opinion, that a diseased spleen was first removed at Rostock, in Germany, by DR. QUITTENBAUM, only fifty-one years ago, *i. e.*, October 5, 1836.

If we could believe the oft-repeated statement of splenectomists, the initial operation was performed at Palermo, in April, 1549, by Adriano Zaccarello, of Palo, a town in the kingdom of Naples. But the best authorities in Italy make no claim to the case, and through them we learn the total unreliability of its historian, Leonardo Fioravanti, who in one of his eight books, *Tesoro della Vita Umana*, Venice, 1570, page 25, makes the statement that the said Zaccarello removed the spleen with a razor, and that the lady recovered. Perhaps Italy never produced a more notorious travelling charlatan and quack medical writer than Fioravanti, of Bologna, who ranged from Venice over the whole Italian Peninsula in his round of practice; and Zaccarello was of the same type, cutting for stone, operating for cataract, etc. Is it at all likely that such a man could properly ligate and remove a spleen of two pounds in weight, so as to secure success 338 years ago? Besides, Fioravanti's story did not appear until twenty-one years after the operation was said to have been performed, and if

he was worthy of credence we should have to add a second case, his own special work, done in Naples in 1551, as he states in another book; but this operation appears to have been overlooked.

The second historical case in order has been credited to "Ferrerius," in 1711, with a like fortunate result. Ferreri's operation was certainly not a splenectomy surgically considered, although the patient lost her spleen. The subject was a plethoric woman, thirty years old, who had an abscess of the spleen, with a fistula near the umbilicus. Ferreri opened the abscess, the splenic tissue broke down, and finally the capsule came away. The woman bore a child afterward, and in 1716 died. At the autopsy, no spleen being found, a report became current that it had been extirpated. Cases similar to this have since occurred, and one of them quite recently in this country.

A third success has in some tables been credited to Dr. Fantoni, of Milan, who certainly was not a splenectomist, according to the best Italian authorities. Our experience teaches us that Italian surgical historians make very decided claims to priority where they believe them to be well founded; and as they now reject all the three cases enumerated, the rest of the world may be content to drop them.

A fourth case has crept into literature through careless translating, and Dr. Volney Dorsey, of Piqua, Ohio, figures in table after table as D'Orsay, a successful splenectomist. Dr. Dorsey, on September 2, 1855, opened the abdomen of a farmer, forty years of age, who had long suffered with violent pain in the region of the spleen. This organ was enlarged and had contracted abnormal adhesions, which the operator broke down, with the effect of restoring the man to health. Such a procedure was a much more remarkable one thirty years ago than it would be now.

As the entire spleen has been removed because of disease or displacement, or both in combination, some sixty-two times; and the proportion of cures is decidedly on the increase in latter years, we can readily afford to confine the record to an enumeration of the cases known to have been of a legitimate character. The leukæmic spleen is the most hazardous to remove, and if the leucocythæmia is very decided the operation is always fatal. A simple hypertrophic spleen, recent or congenital, is less dangerous to exsect, and the displaced or "wandering" spleen the least. But in all the operations the risks from hemorrhage and shock are very great, and patients are liable to die in collapse in a few hours. In traumatic cases there is much less risk in the removal of the organ, and the records of the past are decidedly encouraging to the operator.

PLASMODIUM MALARIÆ.

THE facts concerning the plasmodium, or, as Osler proposes to call it, the hæmatomonas malariæ, are such as to convince the most sceptical investigator that its relations with the malarial fevers, if not those of cause and effect, are certainly of a most intimate nature. It was in a spirit of scientific incredulity that the observer just mentioned began the researches which ended in his conversion to the views of Laveran. It seemed, says he, "so improbable, and so contrary to all past experience, that flagellate organisms should occur in the blood. The work of the past six months has taught me a lesson on the folly of a scepticism based on theoretical conception, and of preconceived notions drawn from a limited experience." Marchiafava and Celli, who are now among the strongest supporters of the doctrine that the plasmodium is an animal parasite, at first opposed the views of Laveran and Richard, and contended that the hyaline bodies within the red corpuscles were neither more nor less than a conversion of their hæmoglobin into melanin.

One of the latest contributions to this subject is that of COUNCILMAN, of Johns Hopkins University, who, in an address recently delivered before the Pathological Society of Philadelphia, not only reiterated his belief in the plasmodium, but announced, with reference to it, further facts of interest, the results of his continued study of malarial blood.

The significance of these facts is so great that it is unnecessary to refer to the corroborative work of others.

Several independent, thoroughly trained workers, in different quarters of the globe, using, in their researches, the best lenses of the best opticians, have arrived at the following conclusions: 1. In the blood of malarial subjects, an organism is invariably found, which organism is absent in all other conditions. 2. With improvement in the condition of the patient, the parasite disappears or remains in but one of its polymorphic forms, the pigmented crescent. 3. Quinia, the universal specific for malarial poisoning, is fatal to this parasite; so much so that it is a *sine qua non* in the search for it, that the patient shall not have recently taken this drug.

What more is needed to complete the circle of this discovery? But one thing, from a scientific point of view, although, from a purely clinical standpoint, its absence is not conspicuous. It is the cultivation of the organism in a pure state outside of the body and the production of malarial fever by its introduction into the blood of a healthy individual. Attempts to effect these objects have thus far proved unsuccessful.

In a recent communication to the Royal Academy of Medicine of Rome, Marchiafava and Celli call attention to certain differences in the structure of the plasmodium which appear to depend upon the influence of season. Thus, in spring and summer the pigmented forms, in autumn and winter the unpigmented, are more commonly present. This observation had been already made by Golgi. In fatal cases, in which the cerebral vessels contain quantities of the plasmodium, the presence or absence of pigment, in accordance with the season of the year, is said to be quite evident. The statement that the segmentation of the intracellular pigmented bodies occurs shortly before a chill, has been confirmed by Councilman. After the destruction of the corpuscles, these bodies, now of oval shape, escape, and, according to the Italian observers just mentioned, penetrate into the interior of other red corpuscles, but this last statement appears to depend rather upon inference than direct observation.

The blood changes of malarial poisoning, to which this brief reference has been made, are open to the inspection of any one who has the proper optical apparatus and the requisite skill to use it. Their presence is admitted by all, but their parasitic nature is denied by a few. For example, Mosso claims to have produced in the blood of the dog, by injecting it into the peritoneum of another animal—a fowl—all the changes ascribed to the plasmodium, and Tommasi-Crudeli, who adopts his views, triumphantly declares that, in future, these alterations will be attributed to a *pseudoplasmodium*. On the other hand, Marchiafava and Celli, who have repeated Mosso's experiments, maintain that but for his unfamiliarity with the alterations of malarial blood, he would not affirm their identity with those of his experiments.

Considering the great amount of labor that has been recently bestowed upon the study of malarial blood, and the careful drawings that have been made of the phenomena, both intra- and extra-corpuscular, observed in it, the bare statement of Tommasi-Crudeli, that such processes are *necrobiosis*, as he terms them, are not uncommon in other diseases, such as typhus (typhoid (?)) and scarlet fevers and pernicious anæmia, will not go far in the way of refutation. His criticism, however, that attention has been too exclusively centred upon malarial blood, may appear well taken until the reflection arises that but for this very concentration the changes in it would not have been observed.

Dr. T. Mitchell Prudden is in charge of the new laboratory of the College of Physicians and Surgeons, of New York, and is conducting a systematic study of the bacteria contained in the Hudson River ice, so much of which is consumed in New York and vicinity. He first personally visited the ice fields and took samples of water and ice to the extent of 300. He finds in a cubic centimetre of melted ice an average of 2033 living bacteria. The snow-ice has many more of them than the transparent block-ice. In the former kind of ice he has discovered as many as 12,000 to the centimetre. Dr. Prudden holds that the State Board of Health should have an active supervision over the ice harvest with the power to prohibit the business in localities that are too suspiciously close to large cities that discharge their sewage into the river.

Another blow at American industry may be constructed from a recent "warning to the public," by the police authorities of Berlin. From the official advertisement, it appears that, under the name of "Warner's Safe Cure," a brown liquid in bottles of about a pint capacity has been recommended as a remedy in kidney affections, and sold at the rate of four marks, or about a dollar, per bottle. Examination, it is stated, shows that the remedy consists essentially of "American wintergreen" (chimaphila?), and its value is, at most, two marks a bottle. This is an indorsement rather different from those familiar to our newspaper readers, signed by aldermen, clergymen, and cabinet ministers, but quite as instructive in its own way.

The capital punishment Committee of New York State, appointed a year ago, has made a report to the Governor in favor of electricity as a means of judicial execution instead of hanging. Among the many projects laid before the Committee was one from a Parisian mechanic, who has devised a chair in which the spinal column of the condemned can be instantaneously broken.

At the Eastern District Hospital, of Brooklyn, N. Y., about a month ago, a man who had been injured about the head and brought in by the police, died from erysipelas. The verdict of the coroner's jury censured the Hospital management on the score of inadequate attention. Suit has been brought, in the name of a young daughter of the deceased, against the institution and against the directors individually, for damages for the loss of her parent. The party bringing suit against the directors claims that, if this death can be shown to be due to want of proper care and attendance on the part of the medical staff, the directors can be made jointly and severally liable.

A bill has been introduced into the New York State Legislature making the Health Officer of the port a salaried official at $10,000 per annum. The present receipts from fees are generally quoted at about five times that amount.

SOCIETY PROCEEDINGS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, December 28, 1887.

The President, J. Solis-Cohen, M.D., in the Chair.

Dr. Charles Meigs Wilson read a paper on

THE TECHNIQUE OF OÖPHORECTOMY.

He desired to call attention to those methods which have received the stamp of approval of the surgeons who have thus far had the best results in abdominal surgery. The methods detailed below are the *common* property of the medical profession, evolved by the experience of many operators. Some the author first saw used in England and in Germany, others are the result of American ingenuity, and all are of great importance in the production of good results after operating.

Preparation of the patient.—The urine should be carefully examined, in order to see that it is free from albumen. Neglect of this rule has doubtless oftentimes been the cause of the patient's death. The gastro-intestinal canal should be in state of healthy function, and the day preceding the operation all portions of the intestine should be thoroughly emptied. This is best secured by the administration of some gentle laxative, such as the compound liquorice powder, in one or two drachm doses; or, if there be torpidity of the liver, by the administration of one-twelfth of a grain of calomel every hour until the bowels are opened; care, however, being taken in both cases not to purge the patient, and not to set up any excessive peristalsis. On the morning of the operation, the rectum should be emptied by an enema, and in order to prevent the accumulation of gas in the intestines, and to avoid gaseous distention of the intestines, it is generally best to put into the laxative enema administered a little turpentine emulsified with the white of an egg. This, as a rule, relieves the intestines of any accumulation of gas present in them, and at the same time is not irritating.

The patient should have, on the morning of the operation, a hot bath, which will add to her comfort and remove any sebaceous matter on her abdomen; it is best to have the patient sponged with alcohol after the bath. Also, on the morning of the operation, the patient should abstain from taking food, unless it be a cup of strong coffee or a little milk and lime-water. The administration of this food should always precede the time of operation by three or four hours. Above all, it is necessary that the patient have a chance to recuperate her strength and prepare for the mental and physical ordeal of the operation by having a rest in bed of at least three days before the operation, and this is especially important if the patient has come on a long journey and is fatigued with travelling.

The operation.—The room for the operation should, when possible, have walls and floors which can be thoroughly cleaned and disinfected, in order that the operation may be conducted in an aseptic atmosphere. An operating-table of plain wood, painted, resembling in size and shape the ordinary kitchen table, is all that is necessary. One or two stands of light construction, and a chair for the assistant who holds the patient's limbs, are all the furniture required. A large can containing distilled water and an alcohol lamp or gas burner under it so as to maintain the heat of the water at a fixed temperature, and a tube running from the can to the table, so that at any time during the operation the whole operative field can be flooded, should also be in the room. The sponges are used over and over again until the sponge fibre commences to show evidences of disintegration. These are always of the finest quality and for the most part those which are known as potter's sponges, or thin, flat sponges. For the first time, they are prepared as follows:

All of the dust is first beaten out of them. They are then immersed in a fifteen per cent. solution of hydrochloric acid for forty-eight hours. They are next thoroughly washed until all the acid is removed from their interstices. Then they are placed for half an hour in a solution of permanganate of potassium, 180 grains to 5 pints of water. This is done in order to bleach them. The hydrochloric acid solution is for the purpose of removing any mineral matter that may be in their meshes. They are again washed in running water and placed in a solution consisting of ten ounces of the hyposulphite of sodium, five ounces of hydrochloric acid, and sixty-eight ounces of water. They are allowed to remain in this solution for a period of from two to four hours until thoroughly bleached. They are next thrown into troughs of running water, where they are allowed to remain for several hours. Afterward they are placed in jars containing solution of bichloride of mercury (1 : 1000) and hermetically sealed until the time of operation. After an operation they are washed out in warm water, then soaked in a solution of sodium carbonate half an ounce to a pint of water for three or four hours, then rewashed in warm water and put back in the 1 : 1000 bichloride solution ready for use again. The instruments are all nickel-plated, with the exception of the cutting edges. They are prepared by being first scrubbed with glycerine soap and then immersed for several minutes in boiling hot water. They are then laid upon towels which have pre-

viously been immersed in the solution of the bichloride of mercury (1 : 1000) and thoroughly dried by superheated steam. They are then ready for use. The needles are kept in a five per cent. solution of carbolized oil. The ligatures and sutures are kept immersed in a solution of bichloride of mercury (1 : 500). They are always washed in distilled water immediately before being used. For suturing the abdominal wall silkworm-gut has been found most satisfactory, clamped and held in position by perforated shot. For ligatures twisted Chinese silk has been found to be the best.

The temperature of the operating-room should be about 75°. It is best to cover all portions of the patient's body with light blankets, with the exception of that portion of the abdomen involved in the seat of operation. An assistant sits at the foot of the operating table, and receives and holds the patient's limbs, passes the catheter just before the operation, and, when necessary, with the finger in the vagina, lifts ovary, tube, or pedicle up into the abdominal wound, as the operator may desire. A trusted assistant takes charge of the anæsthetic, and does nothing else. The chief assistant stands on the left side of the patient, ready to give immediate aid to the operator.

Immediately preceding the operation, the patient's abdomen is wiped off with a little ether, in order to remove any greasy matter that may be present upon the abdominal wall, and is then washed with the bichloride solution (1 : 1000), and carefully dried, especial care being taken to see that all the little folds about the umbilicus are perfectly clean. If there be an abundance of suprapubic hair, sufficient is removed to give a chance for extending the incision downward if necessary. The operator having satisfied himself that the patient is sufficiently anæsthetized—and by sufficient is meant that she is anæsthetized to the surgical degree—the abdomen is opened with a few rapid strokes of the knife, without the use of the director.

The operator can readily judge of the depth of the abdominal wall, and really no care is required until the subperitoneal fat is reached. The abdomen is opened in the median line, care being taken to strike the linea alba if possible, so as not to open the sheath of the recti muscles. If the operator fails to strike the linea alba, no time is lost in dissection in order to reach it; but if he misses it, the abdomen is opened if need be, through the rectus muscle. The rule with reference to the incision best to be followed is to make it as small as is compatible with the removal of the ovary or of the growth. Where oöphorectomy is performed, an incision one and one-half or two inches in length is amply sufficient. On the contrary, where an ovarian cystoma is to be removed, and the tumor is a large one, or, perchance, semi-solid, or where the adhesions are numerous, it is a great deal better to enlarge the incision in order that the growth can be readily reached, rather than to attempt its removal without knowing exactly what we are doing, and without having room enough to raise it up through the abdominal wound.

No care is taken to prevent the blood from the wound in the abdominal wall escaping into the peritoneal cavity, and although it is always best to avoid allowing the contents of a cyst getting into the abdominal cavity, it is thought best to complete the operation rapidly, rather than to avoid the escape of the cyst contents into the abdominal cavity. If, however, we are dealing with a pus tube then, of course, the greatest care must be used to avoid the escape of the pus into the peritoneal cavity, owing to rupture of the tube wall. The pedicle is transfixed with an aneurism needle, the penetrating arm of which is at right angles to the handle, and tied with stout, twisted Chinese silk. The loop of the ligature carried through the pedicle is held as the needle is withdrawn, and divided; each half of the pedicle is tied, and then the whole pedicle is tied with the remaining parts of one of the ligatures. The pedicle is severed close to the ligature, care being taken, however, to leave sufficient of the pedicle to prevent the ligature from slipping. An important precaution to take to avoid secondary hemorrhage, is to hold the pedicle with the Martin forceps for a few moments and then, if there be no evidence of hemorrhage, it is dropped back into the peritoneal cavity. Where there is any tendency to hemorrhage from the pedicle, it is lightly touched with the flat button of the Paquelin cautery. Where the ovary is bound down by adhesions, and there is oozing from those which have been torn asunder, they are lightly touched with the finger, which has been rubbed against a piece of the perchloride of iron.

The abdominal cavity is then invariably flooded for about five minutes with a stream of distilled water at a temperature of 100° F. It is surprising to see how, when a patient is profoundly shocked, this intraperitoneal irrigation with hot water will immediately restore the equilibrium of the pulse and rally the patient from the shock. In operating, care should always be taken not to handle the ovary or the meso-salpinx any more than is absolutely necessary, because, as has been frequently noted, the patient's respiration becomes embarrassed, and oftentimes temporarily ceases during the time that the ovary is in the grasp of the operator's fingers. Where there is a cyst of any size, its contents are aspirated with Mears's trocar; but where the cyst is small, we prefer to enlarge the abdominal wound, rather than to delay the operation by evacuating the contents of the cyst with the aspirator.

The toilet of the peritoneum.—First, as noted above, the peritoneal cavity is thoroughly irrigated with distilled water at a temperature of 100° F. The patient is then turned on her side and all the water allowed to drain out that will. She is then again turned upon the back and the peritoneal cavity carefully sponged, the intestines and mesentery being held out of the way with one hand while with the other the operator carries the sponge attached to a bayoneted sponge-holder, first into the retro-vaginal portion of the peritoneal cavity and then into both iliac fossæ. The sponging is continued until all shreads of coagulated blood are removed and until, when the sponge is brought up, only a pale pinkish fluid escapes when the sponge is squeezed.

When we are sure that all hemorrhage has ceased within the peritoneal cavity, the intestines, if any have been left out of the abdominal cavity, are carefully replaced and the mesentery is folded over them. If necessary to lift loops of intestine out of the abdominal cavity, they should be carefully wrapped in soft towels kept moist and at a temperature of 100° F. Upon the mesentery is placed a thin, flat potter's sponge which extends half an inch or more around all portions of the wound. This is placed there in order to absorb any blood which may escape from the needle punctures. Its centre is

grasped by a hæmostatic forceps in order to facilitate its removal after the sutures have all been introduced. A strong, stout needle threaded with a loop of catgut or Chinese silk, in order to snare the silkworm-gut, is used in the introduction of the sutures. The sutures are all introduced from within outward in order to avoid wounding the intestines with the point of the needle, and the free ends of each suture are held in the bight of the hæmostatic forceps. When the sutures are all introduced, the flat sponge is removed and the central suture is first tightened. It is found that, as a rule, this makes a neater approximation of the edges of the wound. The sutures are fastened with perforated shot. The abdomen is carefully washed off with the solution of the bichloride of mercury (1 : 1000), immediately after the wound is closed. There is then poured over the surface of the wound a liberal quantity of Keith's dressing (twelve per cent. solution of carbolic acid in glycerine). Over this are laid five or six thicknesses of Lister's gauze and over the first thickness of the Lister's gauze (the one nearest the wound surface) is dusted a liberal quantity of pulverized iodoform or equal portions of iodoform and boric acid. Over the Lister's gauze is then placed a thick wad of bichloride wool—that is, wool that has been wet with a solution of bichloride of mercury (1 : 1000) and thoroughly dried. Over this dressing is applied a bandage of opera flannel fastened with safety pins.

After-treatment.—For the first twelve hours after operation, the patient eats absolutely nothing. If, at the end of that time, the patient has rallied from her shock, and there is no hyperpyrexia or other symptoms of evil import, we commence to feed the patient with weak tea, ice-cold, giving two or three drachms every hour. This we have found by experience to be the best way of quenching thirst and furnishing gentle stimulation without overtaxing the stomach or producing nausea or emesis. At the end of twenty-four hours we commence the administration of food. This is preferably milk, if the patient will take it and the stomach retain it. If the stomach be irritable, we give koumiss or matzoon in place of milk. Unless the stomach rebels, the use of the milk is continued in half-ounce doses with a little lime-water, and after a few hours it is alternated with beef or chicken tea; on the fourth day, if the patient is doing well, we commence the administration of animal broths and soft food.

The dressing is never changed unless symptoms arise leading us to suppose there is something wrong with the wound, or trouble within the peritoneal cavity. The sutures are removed on the seventh or eighth day. Drainage is never employed, unless we have reason to fear tissue necrosis as the result of traumatism of the operation, or unless we fear hemorrhage into the peritoneal cavity. If symptoms arise which indicate danger, it is a very easy thing to open the lower angle of the wound, and insert a drainage tube; where a drainage tube is used, glass is the preferable form. Great care must be taken to see that the mouth of the tube is thoroughly closed by a little tuft of the bichloride wool. When it is necessary to remove any fluid contained in the drainage tube, it is best done with the long uterine syringe, and after the removal of any fluid it is well to pour along the sides of the drainage tube a few drops of Keith's solution of carbolic acid and glycerine. As a rule, the patient is kept in the hospital for a week after the sutures are removed, and is enjoined from travelling any distance until a month has elapsed from the date of operation. The bowels are moved, as a rule, upon the sixth day, preferably by a gentle saline. Recently we have found Rubinat water the best for this purpose, giving a third of a tumblerful as a dose.

Great care should be taken by the operator to know exactly how many hæmostatic forceps, instruments, and sponges, are present in the room prior to the operation. It is the duty of the nurse to count over the instruments and have the count verified by an assistant both before and after the operation, in order that the operator may avoid the distressing accident which has happened of leaving a hæmostatic forceps or sponge within the abdominal cavity.

The operation may be performed at any time, with the exception of the menstrual period, and five days before and five days after it.

Complications arising in the after-treatment.—A majority of the cases that die after oöphorectomy perish from sepsis. Where proper care is taken in the preparation and management of the operation to have everything about the patient, including the atmosphere of the operating-room, the patient's body and clothing, the instruments, the dressings, and, above all, the conduct of the operation in aseptic condition, experience has shown that an extremely small per cent. of patients die from this cause. Careful attention to the rules described in this paper will do a great deal to prevent trouble of a septic nature after the operation. Cleanliness is the desideratum, and this is not by any means attained by the use of antiseptic agents. Indeed, the best results have been obtained, not with the use of carbolic acid or corrosive sublimate, but by the use of distilled or plain boiled water. Personally, he believes that the use of carbolic acid is never justifiable, for it can never be used in solutions sufficiently strong to possess aseptic properties without subjecting the patient to the danger of carbolic acid poisoning. Where, however, septicæmia does present itself it is best combated by reopening the abdominal wound and irrigating the peritoneal cavity with hot water. The septic hyperpyrexia is best reduced by the administration of antipyrin, and when once the temperature is gotten within the safety line it is best kept there by the administration of quinia. In desperate cases good results in the reduction of high temperature may be hoped for from the ice-cap. Stimulus must be freely given, and opium or chloral in sufficient doses to control the nervous disturbance which is nearly always present. Where it is necessary to give opium or chloral it is best to give by the rectum, saving the stomach for the administration of food and stimulus.

Peritonitis following operation is generally septic in character; it is best subjugated by the use of salines. Shock after the operation requires the same plan of treatment employed in treating shock after any other operation. The usual means employed are external warmth and the hypodermatic administration of cardiac stimulants, as soon as the patient can swallow a few spoonfuls of hot coffee, will generally be found the best means to counteract the shock.

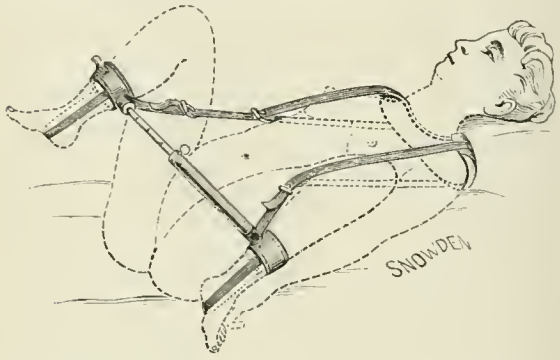
The limitations of oöphorectomy.—Dr. Wilson believes the operation is justifiable for the relief of ovarian pain, otherwise uncontrollable; for the artificial establishment of the menopause in cases of uterine fibromata character-

ized by rapidity of growth and exhaustive hemorrhage and in which all other means have been tried unsuccessfully; for the cure of those cases of hystero-epilepsy which have well-defined menstrual exacerbations and which have failed to yield to all other plans of treatment; and finally for those cases (which abound in every hospital for the insane) in which the mania or mental aberration is evidently dependent upon, or caused by, the act of ovulation. Indiscriminate, or what may be called hit or miss spaying, cannot receive too severe condemnation.

Dr. W. W. Keen reported

A MODIFICATION OF THE "PERINEUM DISTENDER" TO AVOID ITS INTERFERENCE WITH RESPIRATION.

In the frequent use of the "Perineal Distender," he has found the strap which passes under the nape of the neck very objectionable. This strap flexes the legs, and supports their weight. While doing so the weight of the legs pulls the head and neck strongly forward, and thus often seriously embarrasses the respiration.



To avoid this, he has had the wooden shoulder-piece of the old Day's apparatus for fracture of the clavicle slightly shortened, and finds it answers admirably. Under its loops, over each shoulder, two straps are passed with a buckle turned wrong side foremost at one end. The other free end, after passing through this buckle in the armpit, then is buckled to the cross-piece between the legs. By this means the pressure is brought on the shoulders instead of the neck, and respiration is entirely unimpeded.

He has also had two straps attached at right angles to the straps for the legs. By this means the leg-straps can be secured above the calf as usual or at the ankle. In this last position the new straps, by passing under the foot-soles, more completely flex the legs, and get the feet out of the way of the operator.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, December 8, 1887.

The President, Thomas M. Drysdale, M.D., in the Chair.

NEPHRECTOMY.

Dr. M. Price exhibited a kidney which he had removed in consequence of a perforating bullet wound. The patient, a young girl, was handling the weapon when it exploded, the ball entering in front on the right side and passing through the liver and kidney and burying itself in the spinal muscles. At the time of the operation, twenty-four hours later, the pulse was 150, temp. 103°, peritonitis had set in and the patient was in collapse. An incision, six inches long, was made, and arterial blood was seen escaping from the kidney, which it was thought best to remove. The liver wounds were dry and not oozing. Rapid improvement continued for nine days, but there has since been a rise of temperature, and on the nineteenth day the temperature is 100°, the pulse 108, and the patient is doing well.

Dr. B. F. Baer reported

A CASE OF SO-CALLED OVARIAN ABSCESS, SMALL SUPPURATING OVARIAN CYST,

occurring in a girl of seventeen years of age.

B. C. was sent to him on November 1, 1887. Puberty was established at eleven years of age, or, rather, she began to lose blood from the womb at that time, for she has never normally menstruated. As a rule, there would be a metrorrhagia every ten days to two weeks, sometimes lasting a whole week, but usually only three or four days. No serious trouble attended this flow except that she sometimes felt worn out, although it was not at any time excessive. At first after puberty the intervals were longer but gradually decreased until she was almost constantly flowing. She had never suffered much until last August, when she was taken suddenly with pain in the left ovarian region. The pain was sharp, cramp-like in character, and came on during the day, but she was not aware of any cause for it, such as over-exertion. The attack occurred a day or two after the cessation of one of these attacks of metrorrhagia. The pain increased in severity until it compelled her to go to bed, where she remained a week in great suffering under the care of her physician. She continued in bed four or five days after the pain ceased, from prostration and under advice. After this there was an interval of thirty days before the flow returned, the longest interval she had ever had. Then she began flowing again on October 2d, and continued to flow regularly every day for the next thirty days, at which time she first consulted him. Examination revealed the vagina rather patulous, cervix soft, and uterus occupying a position behind the symphysis pubis, where it was held by a tumor which occupied Douglas's pouch. The tumor extended as high as the superior strait and seemed about the size of a fœtal head. It was rather elastic, apparently circumscribed and fluctuating. He prescribed gallic acid for the metrorrhagia and advised rest. At the next visit he gave the patient ether and determined that the tumor was almost certainly of a cystic character and probably adherent to the posterior wall of the uterus and to the pelvic tissues generally. He advised its immediate removal because of the grave symptoms which it had no doubt produced, and because of the fear of its rupture and possibly fatal injury to the patient.

She entered Dr. Baer's private hospital on November 22d. Operation, November 24th. An incision two inches in length was made in the usual position, and two fingers introduced into the peritoneal cavity. He found the omentum adherent to the posterior wall of the uterus and upper surface of the tumor. This he dissected off and found a tumor the size of a large orange, slightly flattened, occupying a position behind the uterus, extending to the left. It was adherent everywhere and seemed

at first to be subperitoneal, but he soon discovered after beginning the separation of adhesions that his diagnosis of intraperitoneal tumor was correct. The adhesions were quite firm and it took ten minutes of careful manipulation to release entirely the tumor which he now brought up to the incision by placing two fingers under it, he next punctured it with a trocar and canula and drained away about six ounces of thick laudable pus, when it readily passed through the incision. The tumor was of the left ovary, the pedicle was very small and short, consisting of the ovarian mesentery and ligament. He could readily have removed it without removing the tube, so free was it from adhesions to that organ. Indeed, the tube seemed to be entirely free from disease. The opposite ovary and tube were perfectly healthy and were not removed. There was some hemorrhage, but it ceased after a little sponging and the abdominal incision was closed, drainage being considered unnecessary.

The patient complained of great pain after recovery from the anæsthetic, and it required three hypodermatics of morphia to relieve her. There was also violent reaction. Four hours after the operation the temperature was 102° and the pulse 148. This violent reaction was no doubt emotional, for as soon as the patient became quiet the temperature and pulse returned to the normal and did not again show the slightest indication of trouble. Her recovery was remarkably rapid and uneventful. She sat up on the eleventh and went home on the seventeenth day after operation.

Examination of the specimen showed it to be polycystic, the larger cyst cavity which contained the pus having a peculiar reddish, granular-looking lining membrane. At places papillary tufts were to be seen. The smaller cysts contained a clear fluid and had a smooth lining membrane. This case is interesting because of the early age of the patient, the early puberty, the frequent recurrence of the metrorrhagia, and the purulent character of the fluid contained in the cyst, the latter condition constituting what is commonly called ovarian abscess. This term is a misnomer. True ovarian abscess probably never occurs—that is, an inflammation in cellular tissue or stroma of the ovary which results in "a collection of pus surrounded by a wall of lymph," the surgical definition of abscess. When a pus cavity is found in an ovary Dr. Baer believes its origin can always be traced to a previously existing cystic degeneration of the ovary, the purulent formation being secondary.

DR. J. PRICE remarked that tubal disease may exist in virgins, the probable cause of infection being unclean hands and instruments of an examining physician. The small drainage tubes were introduced in London by Dr. Bantock, and were of seven different lengths. A dangerous rise of temperature certainly does at times arise in some cases from emotional causes, a good example of which, he thought, had occurred in New York, at the Woman's Hospital. A patient was operated on in one of the cottages, and was doing nicely; during convalescence she was moved into the hospital much against her will, her temperature arose immediately, and she died in a few hours.

DR. HIRST said that "emotional fever" is often observed after laparotomy. He had seen the temperature rise above 100° in an instant because he had told the nurse in the hearing of the patient that "the stitches were to be removed to-morrow." He had seen some very extraordinary cases of "emotional fever" in the puerperal state, having more than once seen the temperature rise suddenly to 104° in consequence of a fit of weeping. This phenomenon is not very uncommon in the Maternity Hospital, where the patients are for the most part young unmarried primiparæ.

DR. KELLY observed that instrumental infection of a healthy woman is a very real danger to which many victims have been sacrificed. He advised aspiration in all small cystic tumors before proceeding to their delivery at the incision. In this way a certain proportion of lives will be saved by avoiding the frequently inevitable rupture with an escape of poisonous contents amongst the intestines. A systematic use of the drainage tube is advisable, but not such tubes as are in common use. Dr. Dudley, of Chicago, uses a very delicate little tube which can be slipped in between the sutures and answers all purposes, especially used as he has long done, leaving in a piece of twisted absorbent cotton which carries everything up from the bottom of the tube by capillary attraction.

DR. DA COSTA remarked that he had used a tube with an outside diameter of only three-eighths of an inch four years ago, and did not think there was anything new about it as he had at that time bought it ready made from the shops.

DR. LONGAKER believed that many cases of diseased tubes are due to filthy instruments and careless manipulation. A case had come under his care of an unmarried woman of undoubted virtue, suffering from bilateral disease of the appendages. Her history was that of dysmenorrhœa for which the os had been incised. After this operation she was confined to bed for six months. Some months later she came into his hands, and was also seen in consultation by the late Dr. Albert H. Smith, who agreed in the diagnosis. The case passed out of his hands without operation. The conclusion that the operation was not done under perfect conditions is forced upon us, and also that by reason of this carelessness her condition was rendered worse than it had been.

DR. DRYSDALE, in reply to a question from Dr. Baer, said that often when the ovarian cells are crowded together the fluid will have the appearance of pus. The application of acetic acid will, however, always differentiate them from pus cells. Pus and ovarian cells can exist in the same fluid, but in cases where the pus cells become in excess the ovarian gradually disappear. A blow on the abdomen over the ovary has caused an inflammatory process which resulted in an ovarian abscess. Dr. W. L. Atlee had always drained after serious operations, but in his day tubes had not been introduced; he had used tents.

NEWS ITEMS.

The Improved Condition of the Crown Prince.—The *British Medical Journal* of January 7, 1888, writes as follows regarding the improved condition of the Crown Prince:

It is with profound satisfaction that we learn, on the highest authority, that the symptoms which caused so much alarm at the beginning of November have almost entirely disappeared. The growth in the subglottic region, which was then looked upon with such suspicion, has now shrunk to a fourth of its former size; the ulcer

on its surface has completely healed, and the submaxillary glands, which were enlarged and hardened, are now in a perfectly normal state. The little growth which recently showed itself on the left ventricular band (false vocal cord) sloughed away very soon after its formation, and the ulcerated surface left behind was nearly cicatrized when Sir Morell Mackenzie left San Remo. The Prince is now quite free from the slight, but constant feeling of discomfort about the larynx from which he had suffered since the beginning of last year, and his face has lost the somewhat waxen pallor which struck so many observers when His Imperial Highness was in England. We are able to state that, in the opinion of Sir Morell Mackenzie, the appearances in the Crown Prince's throat are now quite compatible with the more severe form of chronic laryngitis.

In illustration of this, it may be interesting to quote some remarks from his work on *Diseases of the Throat*, vol. i. p. 288, where it is stated that "in addition to congestive swelling of the mucosa and submucosa, there occurs in some rare cases an organic thickening or hypertrophy of the soft structures." It is also said there that "nodular excrescences the result of chronic inflammation are often met with," presumably in the rare cases just alluded to. These words were written eight years ago, and the case of the Crown Prince would seem to be a perfect example of the morbid condition which they describe. In addition to the chronic inflammatory process, there is no doubt that perichondritis is also present. In speaking of this affection, Sir Morell Mackenzie (*op. cit.*, p. 391) has called attention to the frequency of "impaired action of one or both of the vocal cords;" and it may be remembered that in the case of the Crown Prince the action of the left cord has been defective for many months past.

Whilst, however, there is now good ground for hoping that the disease may be of the comparatively favorable character here indicated, it would be foolish to allow ourselves to take too optimistic a view of the situation. The possibility of the affection being after all malignant, in spite of present appearances to the contrary, must not be too hastily dismissed; and, on the other hand, it should not be forgotten that even the milder complaint, toward which the symptoms seem now more or less definitely to point, is a serious one both in itself and in its possible consequences.

Gleditschia Triacanthos Again.—Pharmacist Metz, Instructor in Practical Pharmacy at Tulane University, New Orleans, has recently made careful experiments with the leaves of the honey locust, endeavoring to extract the alkaloid. He obtained from Messrs. Goodman and Seward, who first obtained the leaves, a description of the localities and trees from which the first leaves were taken, and endeavored to find the original sources. He failed, however, to find any trace of the investigations of Goodman and Seward; the substance which he obtained from leaves taken in the original localities and from the honey locust trees failed to exhibit the slightest anæsthetic or active properties; and his investigations confirmed his opinion that the alleged discovery was a hoax.—*American Druggist*, January, 1888.

Disinfection at the New Orleans Quarantine.—*Science* of December 30, 1887, describes the methods in use at the New Orleans Quarantine as follows: The methods practised by Dr. Holt are very thorough, and in their application, a tugboat, fitted up with all the necessary machinery, is employed. The bedding of the vessel, together with cushions, mattresses, carpets, rugs, etc., is removed from the ship to a commodious building in close proximity to the disinfecting wharf, where they are treated by moist heat at a temperature of not less than 230° F. During this process of steaming, every article is perceived to be saturated and intensely hot, the steam freely penetrating to the interior of mattresses, double blankets, etc.; but so great is the heat in the texture of the fabrics as to expel immediately all moisture upon drawing the racks and exposure to the open air. Shirts and collars instantly assume the crisp dryness they possessed before exposure, losing the musty smell of long packing in a trunk. Silks, laces, and the most delicate woollen goods show no signs of injury whatever from the treatment. Articles of leather, rubber, and whalebone would be injured by the heat, and are, therefore, disinfected with the bichloride of mercury solution. The time required to charge the chamber with apparel for disinfection is thirty minutes; time required for action of most heat, twenty minutes; for removal of articles, fifteen minutes—a total of sixty-five minutes.

Appointment.—Dr. V. P. Gibney, Professor of Orthopædic Surgery in the New York Polyclinic, has been appointed Surgeon-in-Chief in the Hospital for Ruptured and Crippled, New York.

Prize Awarded.—Dr. Daniel Longaker has been awarded the prize of $25 offered by the Philadelphia Clinical Society for the best paper read at its meetings in 1886.

A Spanish Congress for Gynecology.—A congress is to be held at Madrid, under the auspices of the Spanish Gynecological Society, in April or May, 1888. It will consist of three sections: obstetrics, gynecology, and "paidopatia," which, we presume, means diseases of children. The general and sectional work of the Congress will occupy eight days.—*Medical Press.*

A Successful Splenectomy.—From the *British Medical Journal* of recent date we learn that an enlarged spleen was removed in London on Dec. 5th by Sir Spencer Wells. The solid portion, now at the College of Surgeons, weighed one pound fourteen ounces, after a great deal of blood had drained from it. The patient was an unmarried lady, aged twenty-four. The wound healed by first intention, and she was so well on December 21st that she is expected to return to her country home before the end of the year. No doubt the case will be published, or brought before one of the Societies for full discussion.

Diphtheria in Straw Heaps.—A writer in the *British Medical Journal* of December 17, 1887, remarks that the works of Klebs, Ferrand, and others show that straw and manure heaps play a considerable part in propagating diphtheria. An army surgeon has tried to prove by statistics to what extent these statements are reliable. He has collected the following facts. In the French army diphtheria causes three times as many deaths in cavalry regiments as in the infantry. This affection is

most prevalent in the cavalry barracks in Paris which are in the vicinity of stables belonging to Paris omnibus companies and near a large depot for manure. In the German army the same proportion exists, there being three more deaths from diphtheria in the cavalry regiments than in the infantry. In the Austro-Hungarian army diphtheria is rare, and is principally met with in the cavalry regiments. MM. Emmerich and Chaveau consider that the diphtheria of birds is identical with that of human beings, also that fowls and pigeons may be the means of introducing diphtheria germs into any hospital. This theory, however, is still unproven.

The Medical Department of the University of Giessen.—Buildings for the accommodation of clinics for medicine, gynecology, and pathology are in process of erection at this university. At the suggestion of Professors Ludwig and Riegel, a clinic of 80 beds and an asylum of 200 or 300 beds are to be added.

The Gonococcus in Court.—From the *Medical Press* we learn that some little time ago, in Belgium, a man was accused of the rape of a little girl. On the clothing of the accused and on that of the alleged victim spots of pus were found, and handed over for examination to a physician and a pharmaceutist of the first class. These experts declared the pus to be gonorrhœal, whereupon the defending counsel demanded proof of the presence of gonococci. Dr. Castiaux, Professor of Forsenic Medicine at Lille, was, therefore, called upon to make a fresh examination of the spots with the object of determining the existence or non-existence of microörganisms. Dr. Lober, who took part in the examination, made pure cultivations of the pus on various media, and finally on sweetened and peptonized agar, and by this means was enabled to confirm the gonorrhœal nature of the pus.

A New Hospital at Vichy.—An extensive hospital has been recently constructed and opened at Vichy, at a cost of between $300,000 and $400,000. It comprises a hospital for the people living in the vicinity; a ward for the aged; a ward for orphans; a thermal hospital, devoted to treatment of those who visit Vichy to take the waters; a wing for military patients, and an official pavilion, with a chapel, and other auxiliary buildings.

Disinfecting Stations.—The Department of the Seine has ordered the erection of a station for compulsory disinfection in each of the eight districts under its jurisdiction.

The Number of Physicians in Prussia.—The statistics of Prussian physicians on April 1, 1887, showed 8228 physicians in civil life, and 813 physicians in military service. The distribution of civilians was fairly proportionate to the population.

The Successful Cremation of two bodies was performed in the new crematories constructed in Père-La-Chase by the city of Paris, on December 15th.

Sleep and the Gastric Juice.—Dr. P. V. Burjinski, of Professor Manassein's Clinic in St. Petersburg, having enlisted the services in the cause of science of some students and other persons who managed to overcome the natural repugnance most people feel to the passage of even a soft œsophageal tube, has made some investigations on the effect of sleep upon the acidity of the gastric juice. He estimated this acidity by means of a standard solution of soda, and he tested it also for hydrochloric acid. The best test for the latter he found to be floroglucin-vanillin. As, however, this cannot be used when there is any yellow color in the fluid to be tested, the subjects of the experiments were fed on the whites of eggs, all the yolks being carefully put aside. The result of numerous tests showed that during the night the gastric juice is less acid than during the day. Care was, of course, taken that the conditions regarding food were the same during the night as during the day. Dr. Burjinski also found that the amount of acidity varied directly with the amount of hydrochloric acid present.—*Lancet*, December 24, 1887.

Chemical Changes of the Blood in Tuberculosis.—A year ago Dr. Ernst Freund, a pupil of Professor Ernst Ludwig, published the results of his chemical researches on tuberculosis in the *Wiener medicinische Jahrbücher*, 1886. He stated that he had been able to prepare from the blood, as well as from the tuberculous growths of the organs of twenty-five tuberculous cases examined, an organic body belonging to the group of carbohydrates, exhibiting all the reactions peculiar to cellulose—viz., it was insoluble in the ordinary indifferent solvents, but readily soluble in a solution of cupric hydroxide in ammonia; it was resistant to the action of Schulze's mixture of nitric acid and chlorate of potassium; when dissolved in concentrated sulphuric acid, it was converted into sugar by boiling with diluted sulphuric acid, and when treated with nitric acid, ether, and alcohol, a collodion-like body was obtained; it assumed a blue color when treated with iodine in presence of concentrated sulphuric acid or of a concentrated solution of chloride of zinc, and a blue color by adding α-naphthol to its solution in concentrated sulphuric acid. For the sake of control the blood and the normal or pathological organs of thirty other cases were examined, but no trace of cellulose could be found in them. Freund's statements on the occurrence of cellulose in tuberculosis have been confirmed by recent researches carried out by Dr. Kabrhel in the laboratory of Professor Hobaszewski, of Prague. In continuing his researches on the chemical basis of tubercular disposition, Dr. Freund made examinations of ashes of the blood, and found that there is a considerable increase of the potassium salts in the blood of tuberculous persons, while the sodium salts and phosphoric acid are reduced in quantity. The ash of normal blood contains, according to the researches of Jarisch, 25.31 to 26.62 per cent. of potash, 23.7 to 26.13 per cent. of soda, and 8 to 8.96 per cent. of anhydride of phosphoric acid; the ash of the blood of tuberculous persons was found by Freund to contain 29.84 to 37.57 per cent. (miliary tuberculosis) of potash, 12.85 to 18.26 per cent. of soda, and 4.3 to 6.79 per cent. of anhydride of phosphoric acid. The urine in these cases, however, showed no increase of potash. On these results Dr. Freund based a series of therapeutical experiments, which are being carried out in the wards of Dr. Langer. The leading idea of these experiments is to withdraw carbonate of potash from the body and to introduce sodium salts. For this purpose, large doses of phosphoric acid and phosphate of potash, soda, and lime, followed

by carbonate and bicarbonate of soda and chloride of sodium, are used. Dr. Freund maintains that some of the cases treated in this way improved, especially those affected with chronic tuberculosis.

The Influence of Sensations on One Another.—Under this head Dr. Urbanschitsch, of Vienna, reports some curious experiments, the value of which must be left to future research to decide. His general conclusion is, that the excitation of one sense-organ increases the acuteness of the others. If a disk be regarded at such a distance that its color is indistinct, the hearing of a sound will bring out the color. The beating of a watch is heard more clearly with the eyes open than with the eyes closed. Red and green increase auditory perceptions; blue and yellow weaken them. The fact that we listen to music with our eyes closed is due to other reasons, and also to the fact that the *ensemble* appears best when the tones are not at their clearest. Smell, taste, and touch are open to the same influence. Red and green increase the sensitiveness of each of these senses; yellow and blue weaken their sensitiveness. Touch and temperature have a reciprocal influence. If one tickles the skin and plunges it into warm water, the tickling ceases; if into cold water, the tickling brings out the feeling of cold. These observations are regarded as showing the same reinforcing action between sensations as has been shown to exist between motions, and as offering a mode of explanation of those curious associations between colors and sounds so persistent in some minds.—*Science*, December 30, 1887.

The Dangers of Travel in Spain.—The *Lancet* of December 17, 1887, relates the following recent adventure of an English physician: Last week Dr. Middleton, of Scarborough, who was on his way to Tangier, halted with his companions at Cordova. Leaving his fellow travellers at the hotel, Dr. Middleton, accompanied as a guide by a gypsy, visited the cathedral, than which there are few more attractive buildings in the world, for when Cordova was the capital of the Moorish realm in Spain it was the great mosque of the city. He had begun to descend the narrow winding staircase of the tower, followed by the gypsy, when suddenly the latter attacked him from behind, nearly strangling him with one arm, while with the other hand he took two dollars from his intended victim's pocket, and wrenched his walking stick away. Dr. Middleton then drew his revolver and fired two shots over his shoulder, one of which entered the gypsy's mouth, the other taking a downward course through his body. The shots were fatal, and, covered with blood, Dr. Middleton descended and gave notice of the occurrence to the police, who, on their arrival at the scene of the tragedy, found the dead thief still holding in his hand the stick and the two dollars. Dr. Middleton was arrested, but has since been released on bail. The gypsy had, it appears, the worst of reputations, and a most significant fact is that he was companion two years ago to an Englishman visiting the cathedral tower, who was found dead at its foot. The case was then supposed to be one of suicide, but, looked at in the light of Dr. Middleton's experience, it is now viewed differently.

The Death of Gustav Theodore Fechner, Professor of Experimental Physics at Leipsic, is announced. The chief work of his life was upon psycho-physics, and around his theory and writings has sprung up a considerable literature on the subject.

Professor Arthur Christiani.—The death of this well-known scientist of the Physiological Institute at Berlin, is announced. He was a great authority on the physiological action of electricity, on the physiology of the nervous system, and on that of the sense of hearing.

Carl Langer von Edenberg.—This distinguished anatomist, Professor in the University of Vienna, died on December 8, 1887, aged sixty-eight. He was the pupil and assistant of Hyrtl, whom he succeeded. Among his numerous works on descriptive anatomy the greatest are his text-book of *Systematic and Topographical Anatomy* and *Six Contributions to the Study of the Joints.*

Dr. Bernutz. Physician to the Charité, died recently at Sedan. He contributed an extensive series of articles upon gynecological and obstetrical subjects, his best known book being a clinical work on gynecology, in two volumes, which he edited with Goupil.

Dr. Samuel A. Purdy died in New York city, January 12th, in the seventy-sixth year of his age. He was a member of an old colonial family, which has been well represented in regular medicine. He was a graduate in 1834 from the College of Physicians and Surgeons, New York, and one of the earlier members of the Academy of Medicine.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM JANUARY 10 TO JANUARY 16, 1888.

BARNETT, RICHARDS, *Captain and Assistant Surgeon.*—Ordered from further duty in Division of the Atlantic, to duty at Fort Riley, Kansas, to take effect at the expiration of his present sick leave.—*S. O. 5, A. G. O.*, January 7, 1888.

TESSON, LOUIS S., *Captain and Assistant Surgeon.*—Relieved from duty at Headquarters of the Division of the Missouri and as Examiner of Recruits at Chicago, Illinois, and ordered for duty as Post Surgeon at Watervliet Arsenal, N. Y., relieving Captain Henry G. Burton, Assistant Surgeon.—*S. O. 5, A. G. O.*, January 7, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING JANUARY 14, 1888.

PURVIANCE, GEORGE, *Surgeon.*—To proceed to Detroit, Mich., as Inspector of Unserviceable Property, January 11, 1888.

AUSTIN, H. W., *Surgeon.*—When relieved to proceed to Chicago, Ill., and assume charge of the Service, January 12, 1888.

GASSAWAY, J. M., *Surgeon.*—Leave of absence extended fifteen days, January 10, 1888.

GOLDSBOROUGH, C. B., *Surgeon.*—When relieved to proceed to New Orleans, La., and assume charge of the Service, January 12, 1888.

IRWIN, FAIRFAX, *Surgeon.*—To proceed to Boston, Mass., and assume charge of the Service, January 12, 1888.

CARTER, H. R., *Passed Assistant Surgeon.*—When relieved to proceed to Ship Island Quarantine, Miss., and assume temporary charge of the Service, January 12, 1888.

CARRINGTON, P. M., *Assistant Surgeon.*—Granted leave of absence for thirty days, January 10, 1888.

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ORIGINAL LECTURES.

RECENT ADVANCES IN THE SURGERY OF THE BRAIN AND ITS COVERINGS.[1]

BY CHARLES B. NANCREDE, M.D.,

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MR. PRESIDENT AND FELLOWS OF THE ACADEMY OF SURGERY: In casting about in my mind for a topic worthy of the consideration of this learned body, it occurred to me that an inquiry into the recent advances made in the surgery of the brain and its coverings, might prove both interesting and profitable.

I have endeavored, by repeated eliminations, to prepare a condensed account of all the essential advances made since I completed my monograph upon "Injuries of the Head," which in the delivery shall not exceed the time allotted me by custom; this will necessitate the omission of many interesting details. While repudiating all intention to dogmatise, I shall endeavor to formulate *provisionally* some general rules for our guidance in practice, and on the witness-stand. Some of the alleged advances will, upon examination, resolve themselves into mere confirmations of much older tentative propositions. Statistics will not be introduced, except when necessary to prove the truth of assertions apparently opposed to previous experience, nor will details and histories of cases be interpolated, except when needful to illustrate a principle or elucidate some obscure point.

It has recently been shown[2] that, while of unusual occurrence, the smallest scalp-wound, if it become infected, may by progression of the septic inflammation lead to periostitis, purulent ostitis, osteophlebitis, encephalitis; or, again, from the periosteum the infective process may, by continuity of tissue, through osteophlebitis, initiate thrombosis of the cerebral sinuses with consequent pyæmia.[3] Suppose a recent head injury just brought into the hospital, how should we proceed? Do not carelessly pass the forefinger through the filthy, blood-matted hair, and explore at once the depths of the wound, to ascertain its nature, as is too commonly the rule, but carefully shave the scalp, scrub it with nail-brush, soap and water, remove all fatty matter with ether, or a mixture of turpentine and alcohol, completing the disinfection by a thorough irrigation with mercuric bichloride solution. Only now should the wound be examined, when, if either bone or periosteum be found injured, such incisions are indicated as will give free access to the deeper parts, which must next be cleansed. All small, loose fragments of the external table are to be removed; if large, after disinfection, they should be perforated and sutured in place with catgut, leaving sufficient space between the fragments for drainage; all sharp edges should be smoothed off, and, if deemed necessary, catgut drains can be placed between the osseous fragments. Should there be simply a *clean* fissure, let it alone; but if a *soiled* one, cut it out with a chisel and thoroughly disinfect.[1]

By the light thrown by experiment, and confirmed by recent experience, we must entirely revise our conclusions as to the dangers of trephining, *per se*, or of converting a simple fracture into a compound one. Roberts's propositions would now meet with general acceptance.[2] Certainly, our increased knowledge as to the risks of the late cerebral mischief, too often entailed by the erroneous opinion that trephining is only indicated when symptoms of *compression* are present, serves to teach more strongly that which I, in common with Gross, Briggs, Gunn, Roberts, and others, have insisted upon, viz., preventive trephining. Wagner has recently presented a more cogent reason for immediate interference in these words: "The entrance of foreign bodies and injuries from unclean objects, therefore, indicate the use of the trephine," because "it is of far greater importance to prevent the infection of the intracranial tissues, than to relieve the brain from pressure;"[3] even a hair caught in a fissure will certainly produce infection if not promptly removed, as has been proved in more than one instance.[4] The value of what may appear to some, unnecessary precautions, is proved, when we reflect that when immediately put in practice the mortality was only 1.23; whereas, when twenty-four hours or more had elapsed before treatment was instituted, the death-rate was 33.33 per cent.[5]

Special precautions must be observed when both walls of the frontal sinus are broken. Most thorough disinfection of the sinus should precede perforation of its posterior wall, and at the conclusion of the operation, the cavity must be carefully tamponed with iodoform gauze, remembering that symptoms of secondary compression may result from swelling of the tampon, by imbibition of wound fluids. The orbital margin should be unhesitatingly resected, if necessary to remove infected materials or foreign bodies.

I would, therefore, lay down the proposition: that in the present state of science, the surgeon who neglects to resort to the foregoing precautions is derelict in his duty.

A triumphant demonstration of the value of attention to details is given by Wagner, all of whose cases of fractured base who survived the first twenty-four to forty-eight hours—23 in number—recovered. Similar results can only be attained by attention to the following precautions, in addition to those already mentioned:

[1] Annual Oration, delivered before the Philadelphia Academy of Surgery, January 3, 1888.

[2] W. Wagner: Königshütte, Volkmann's Sammlung klinische Vorträge, Nos. 271, 272, Chirurg., Nos. 85, April 20, 1886.

[3] Horsley's case, Med. Press and Circular, 1886, N. S., 495.

[1] Hippocratic experience revived, since this was advised by the Father of Medicine, although upon a different theory.

[2] August and September numbers, Annals of Surgery, 1885.

[3] W. Wagner, op. cit. [4] Wagner, op. cit.

[5] Wagner, op. cit.

The external auditory canal of the ear traversed by the line of fracture, must be most cautiously and effectively disinfected, filled with iodoform, and plugged with antiseptic gauze. If the ethmoid be fractured, iodoform should be dusted or insufflated into the upper part of the nasal cavities. Extensive fractures with alarming nervous symptoms, due to extravasation of blood or inflammatory exudates, do not contraindicate operation in fractures of the vault, or accessible portions of the base; since, if such cases are recoverable at all, this desired end is more likely to be attained by the effective drainage and asepsis secured by operative interference.

Bearing in mind the immediate risks of encephalitis and the future ones of epilepsy and insanity there can be but one opinion as to the advisability of trephining for all varieties of accessible cranial fractures, provided it can be shown that the operation, *per se*, is not a dangerous one. Undoubtedly, under the old regime, the mortality of the operation was 10.69; but is this true with an improved technique? Certainly not; for after eliminating from Amidon's[1] tables certain cases where no trephining was done, many which were not treated strictly aseptically, verifying the remainder and adding others, Seydel[2] has tabulated 61 cases of operations for epilepsy, neoplasms, etc., which would indicate that strict aseptic methods reduce the mortality of trephining, *per se*, to 1.60 per cent., although it must not be overlooked that injuries to the brain, its membranes or vessels, by careless operating, will increase this death-rate.

If the mortality be so low for operations where no recent injury exists, how much more imperative should it now be to trephine immediately in recent compound and even simple, markedly depressed vault fractures, except in young children.

Are there any new principles deducible from recent experience which should govern the technique of trephining?

At once the question of drainage confronts us: Shall it be capillary or by tube? Upon a nice discrimination of cases will, I believe, depend success in practice.

For trephining in fractures, epilepsy, or insanity, in which no lesion of the dura mater exists, catgut, and catgut only seems indicated.

Where large portions of bone have been removed and replaced in toto, no other method of drainage is possible.

With lesions of the dura mater which are reparable by suture,[3] the same kind of drain is indicated, except when a brain tumor has been removed.

Wounds of the dura mater which cannot be sutured indicate tube-drainage, or, better, Horsely's method.

Trephining done for intracranial abscess calls for the use of the tube very gradually shortened, with the strictest watching of the case for some weeks after final withdrawal.

If the first perforation made does not effectually drain a blood or pus cavity within the membranes or brain, when the patient is in *the recumbent position*, either a second opening at the most dependent point should be made and through-drainage instituted, or, better still in many cases, the first button of bone should be replaced after removing a small segment of its periphery, while the second opening is utilized for the drain.

What shall be done with the bone fragments which have been removed? If they are contaminated with foreign material this should be carefully removed even to paring with the bone chisel,[1] when the fragments must be placed in a warm antiseptic solution until needed. If the surgeon fears to reimplant them in bulk, the fragments can be carefully minced up with the chisel and dusted over the membranes.

I would call attention to the peculiar value of this expedient as a preventive of the formation of a hernia cerebri, where such injuries to the dura mater exist as to forbid suturing, or where this membrane seems likely secondarily to give way. The experience of Macewen, Weir, and others incontestably proves not only the feasibility but the advantages of a resort to this procedure.

The general principles governing the treatment of compound skull-fractures are strictly applicable to gunshot wounds, so far as the bone lesions are concerned. Wharton's tables so conclusively show the ultimate evils of the retention of a foreign body in the brain, that if the operation can be done without fatal injury to the encephalon, balls should always be removed, since, even primarily, such injuries are certain to be followed by suppurative inflammation, which too commonly is of the diffused form, when death is inevitable.

The most superficial glance at the histories of recoveries after apparently hopeless brain injuries, shows that the result was due to free drainage, as in the famous tamping-iron case, and one of extensive shotgun disorganization of the anterior fourth of the left hemisphere, which I reported to this Society some two years ago.

The principle of free drainage then, rather than the mere removal of the foreign body, is the guiding principle of the modern treatment, although, to effect perfect drainage, both theoretically and practically, the course of the ball must be followed throughout and disinfected, when the missile being accessible, and capable years hence of producing serious trouble, should be removed.

Heretofore, the main difficulty has been a safe method of search for the ball. Fluhrer[2] has, however, enunciated a new principle capable of revolutionizing practice, if found reliable, viz., the use of a peculiar probe which is allowed to pass along the track of the ball by its own *gravity*, which is so slight as to be absolutely incapable of penetrating the brain substance. The metal forming the probe is aluminum. This instrument should never be curved if it can be avoided, but when bent, the other extremity should be curved in the opposite direction; this is imperative since it is the only means of indicating what course the instrument is taking.

How, then, should we proceed in a case of ball-wound of the brain? After the usual antiseptic preliminaries and incisions, all loose bone fragments must be removed and the opening enlarged if necessary. The patient's head must be then placed so that the track of the ball is as nearly vertical as possible, when the probe, gently introduced into the brain-opening, is to be allowed to *gravitate* along the ball-track. Fluhrer[3] has shown that when

[1] Annals of Surgery, March and April, 1885, p. 196, et seq.

[2] Antiseptic und Trepanation, von K. Seydel, Munich, 1886.

[3] Hopkins: Polyclinic, vol. v. No. iv., also many other cases on record. I have myself used this method with advantage.

[1] W. Macewen: October and November Nos. Annals of Surgery, 1887.

[2] New York Med. Journal, March 28, 1885.

[3] E. M. Moore has also observed the same. Trans. Amer. Surg. Association, vol. iii. p. 91.

the whole cerebral mass has been traversed without penetration of the opposite wall of the cranium, the ball usually rebounds at an angle equalling that of incidence, and becomes imbedded in the brain, about one inch above, below, outward, or inward, according to the direction of the ball. If the probe shows this complete perforation to have occurred, a large counter-opening is to be made, the ball extracted, and the dressing completed as will be indicated for non-perforating ball-wounds.

Suppose, however, that the ball is imbedded in one hemisphere? Place the head as before, and locate the ball with the gravity-probe, then, if no vital parts intervene, pass the probe onward through the brain-substance till it strikes the skull; trephine at this point, cause the probe to emerge, attach two long threads of aseptic silk to the anterior extremity of the instrument, which must now be withdrawn posteriorly, leaving the threads in the wound. With the probe passed through the wound of entrance, measure the distance of the ball from the surface. Now draw through the wound track by means of one of the silk threads passed with a needle through the end and out by the eye, a No. 3 English catheter with straightened stylet, and turn the head so as to have it as nearly in a horizontal plane as possible. A pair of long, slender, double-toothed, self-closing cervix forceps, notched with a file behind the teeth so as to hold a loop of fine aseptic silk must be passed to the previously measured depth—again verified after passing the guide—alongside the catheter by means of the silk loop: if the loop does not play freely over the guide, let guide and forceps move together. Should the ball not be found on one side of the guide, the forceps must be removed and reintroduced on the opposite side, above or below. When grasped, ball, forceps, and guide must be withdrawn together. By means of the remaining thread left in the ball-track, a drainage tube is carried through the whole course of the wound and an antiseptic dressing applied. Drainage must be effected after the same manner for perforating wounds.

Suppose the ball is not found, thorough drainage is afforded for all inflammatory products, and the chances of recovery are enhanced. In a recent case seen with Dr. Heyl at the Episcopal Hospital, failing to find the ball, I introduced a drainage tube about one inch into the brain-substance which evacuated considerable purulent fluid for one week, when it became displaced: recovery ensued without a single bad symptom, although cerebral mischief had evidently commenced before the operation, some twenty-four hours after injury.

In view of these and numerous other facts, active, but cautious interference, is not only now warranted, but demanded, for gunshot wounds of the head.

What should our attitude be with regard to that too rarely recognized condition, osteophlebitis from contusion or disease? When the "puffy tumor of Pott"[1] exists, the bone should be trephined or otherwise freely removed, the diseased area thoroughly disinfected, and strict asepsis maintained. This course, I contend, is correct, not because pus will always be found between the dura mater and bone—for this often does *not* exist—but because *osteophlebitis* is present which frequently leads to fatal septicæmia or pyæmia. That under the most unfavorable circumstances success is still attainable in cases of this nature, which have resulted even in thrombosis of the lateral sinus and septic embolism of the heart and lung, is proved by a recent operation of Horsley's, the disease originating, as is usually the case, from old middle-ear disease.[1]

When considering what should be done for malignant growths of the skull, two most important questions press for solution. If a patient be primarily attacked with malignant disease of the cranial bones, or the subjacent osseous tissue become secondarily involved by extension from the overlying soft parts, shall any operation be done? If an operation be decided upon, what are the prospects of relief, are they merely temporary or permanent?

If it can be shown that the necessary operative interference in such cases is not specially dangerous to life, the first question is answered in the affirmative.

As a typical instance of the successful removal of a primary growth take that of Gussenbauer,[2] who, for a sarcoma of the frontal bone, after reflecting one-half of the forehead as a flap, removed with chisel and forceps the frontal bone over an area measuring three by three and one-half inches, detached the growth at one point from the dura mater, and at the end of two years no recurrence was detectable.

Again, Paully[3] reports the following case illustrative of the impunity with which these operations can be done. In March, 1882, he removed a portion of the frontal bone for a fibrous sarcoma. The wound healed, but at the end of two months the growth returned in situ. Curretting now failing to benefit, six months later the "frontal bone was removed from the root of the nose to the zygoma and up to the hair line; in one month the wound was quite healed. Five months later an enlarged gland behind the angle of the jaw was suggestive of return."[4]

Still more corroborative of the slight danger attendant upon these operations when conducted on strictly antiseptic principles, is a case of Krönlein's, which certainly teaches that in properly selected cases, malignant growths secondarily affecting the cranial vault, should be dealt with precisely upon the same general principles as govern operative treatment for similar neoplasms situated elsewhere, viz., early removal and with a free hand; if the latter part of this advice be not strictly adhered to, such operations had better not be attempted, for the danger to life is the same with no reasonable prospect of good accruing, if timidity gains the upper hand. Of course, the freedom with which surrounding parts should be removed must depend upon the importance to life or motility of the contiguous portions of the encephalon.

Krönlein, after three excisions and two free cauterizations of a carcinoma of the forehead, by another surgeon —*i. e.*, insufficient operations which were only provocative of return—successfully removed—so far as life was concerned—a cancerous ulcer, two and a half inches wide "extending from the root of the nose beyond the line of the hair." To get well outside of the disease area, he removed a piece of bone and dura mater about three-quarters of an inch in diameter, and in addition nearly

[1] Or other evidence of bone inflammation.

[1] Horsley's case already referred to.

[2] Zeitschrift f. Heilkunde, Prag, 1884, Bd. v.

[3] Verhandlungen der. d. Ges. f. Chirurgie, 1883.

[4] Op. cit.

half an inch of the falx cerebri. Temporary benefit ensued, but a second operation becoming necessary two months later, the patient succumbed, but not then even until three months after this last operation.[1]

Although of no permanent benefit, does not such a result encourage us to demand for similar cases *early complete* operations? Death is inevitable sooner or later, and is it not worth while to run the comparatively small risk inherent to such operations, to achieve occasionally a permanent result?

Of fifteen cases done with full antiseptic precautions thirteen recovered from the operation and two died—one of air embolism, a preventable accident.[2] The dura mater was incised or portions excised in eight cases; in four operations the falx cerebri was cut; the longitudinal sinus was twice divided; and in as many instances portions of brain substance were removed. In all considerable bone was excised, and in five the gap left measured transversely three inches. These fifteen operations were done upon twelve patients, in all but two the growth occupying the frontal region. Recurrence took place in only one instance before healing and rapid recidives, all told, in four cases.[3] Such a showing, I believe, warrants the following statement.

That when malignant, or other tumors clinically dangerous to life, attack the accessible bones forming the brain-case, early and thorough removal is indicated, provided the proper completion of the operation does not necessitate the removal of portions of the encephalon essential to life or, perhaps, to progression.

A much larger measure of success awaits those who now operate for that very fatal complication, intracranial hemorrhage, than formerly obtained. The statement of Hutchinson[4] is no longer true, that "the modern annals of surgery do not contain any cases in which life has been saved by trephining for this state of things."

Cecherelli,[5] Krönlein, Weiseman, and others have presented an overwhelming mass of statistical and practical evidence of the advantages of operative interference.[6]

The first question to be settled is, Shall an anæsthetic be given? After Godlee's experience, I for one, think that chloroform is certainly contraindicated, while I also believe that ether is prejudicial and is usually unnecessary from the semi- or completely comatose condition of these cases.

Again, where should the skull be perforated in those cases where neither fracture nor external injury exists.

Since the middle meningeal artery is usually the source of hemorrhage, unless specially contraindicated, the trephine had better be placed[7] from an inch and a quarter to an inch and a half behind the external angular process of the frontal bone on a horizontal line drawn around the skull, at the level of the upper margin of the orbit, parallel with "Reid's base line." Should this opening reveal neither clot nor a bleeding vessel, a second opening on the same line just below the parietal boss must be made.[1]

In one successful case of Krönlein's these two openings were made and a drainage tube passed through both.

The same surgeon correctly diagnosticated the presence of clot in four cases, in two successfully operating and removing it, but failing to make the second opening in the other two, the patients died, post-mortem examination showing that a second perforation would have been successful.

Wetherle[2] also reports a fatal case owing to failure to make this second opening. After removal of the clot by forceps and antiseptic irrigation, unless all bleeding has ceased, if in the dura mater the vessels must be secured by ligatures passed with a curved needle, by a red-hot knitting needle, or acupressure will suffice;[3] or, again, especially for the vessels of the pia mater, serre-fines left until spontaneously separated may be tried.[4]

I, in common with others, have been compelled to resort to antiseptic tampons. Unless through-drainage is clearly necessary, the first bone-button had better be replaced when two openings have been made, and the more dependent one utilized for drainage. If after trephining severe secondary hemorrhage occurs, Jacobson recommends first the application of a freezing mixture over the dressings, then placing the patient in the upright posture, next compression of the common carotid, and finally, if this fails, ligation of the same vessel.

Weiseman's latest statistics[5] show that of 147 cases treated by the expectant plan 131 died, or about nine-tenths, while of 110 operated upon, only 36 died, or about one-third. Moreover, it must be borne in mind that in the majority of those who died, the extravasation was not reached, and, of course, not removed; had this been done the mortality would, undoubtedly, have been less.

This is a far better showing than my statistics collated in 1883, and is unquestionably due to the prevalence of antiseptic methods. Indeed, Krönlein maintains that this operation, aseptically performed, is perfectly safe, death resulting simply from complications unconnected with the operation.

The chief advance in the treatment of brain abscess is the making of a second bone opening at the most dependent portion of the cavity, if the first trephine cut is not favorably situated for drainage, after which the first opening can be closed by its own bone-button, notched on one side to prevent accumulation of pus and wound-secretions. Mr. Barker prefers a silver to a rubber tube,

[1] Deutsche Zeitschrift f. Chirurg., Bd. xxi. and xxii., 1885.

[2] Either by previous ligation of an endangered sinus or keeping the head low and irrigating the wound constantly.

[3] Editorial, THE MEDICAL NEWS, Dec. 5, 1885, pp. 629–630.

[4] Several of these successes had occurred within a few years of the time Hutchinson wrote, and this statement is merely an evidence of careless research.

[5] La trepanazione del cranio in rapporte alle sue indicazioni, Annali univers. di med. e. Chir., April–June, 1885.

[6] A high temperature suddenly induced after a head injury, with slow pulse, slow labored respiration, slowly increasing hebetude and hemiplegia, after an interval of consciousness following the traumatism have lately been asserted to be conclusive proof of intracranial hemorrhage from the middle meningeal artery.

[7] Krönlein: Deutsche Zeitschrift f. Chir., Bd., xxiii., Hefte 3 und 4, 1886.

[1] Where a vertical line carried directly upward behind the mastoid process bisects the horizontal line.

[2] Northwestern Lancet, Nov. 15, 1885.

[3] A pellet of wax, or plugging the canal, when it exists, with a match are other means.

[4] This was suggested by Fluhrer, op. cit.

[5] Ueber die Indicationen zur Trepanationen mit besonderer Berücksichtigung, etc., Deutsche Zeitschrift f Chirurg., Bd. xxi. und xxii., 1885. I would here acknowledge my indebtedness for the facts from these papers to leading articles in THE MEDICAL NEWS of December 26, 1885, and May 8, 1886.

as being both easier of introduction and retention. Fenger and Lee's[1] case teaches how gradually the tube must be shortened, and how long after its final removal it is wise to watch a case. Both upon anatomical and pathological grounds, I think that it is usually best to trephine for intracranial suppuration following chronic ear disease, one and one-fourth inches above, and the same distance behind the centre of the cartilaginous external auditory meatus. Through the perforation thus made the pus must be sought by passing an aspirator needle downward, inward, and slightly forward, toward the petrous bone. When the pus is found, the needle track can be enlarged by a Volkmann's spoon,[2] and a drainage tube introduced.[3] The point mentioned has been selected because pus is more often found in these cases in the temporo-sphenoidal lobe than in the cerebellum or elsewhere, for the tympanic roof is the thinnest portion of the bone, while more vessels pass from the tympanum and along the squamoso-petrosal suture to the dura mater than from the posterior portion of the petrous bone. In all cases, however, the foramen for the mastoid vein should be examined, before perforating the bone, because "if there be inflammation on the posterior aspect of the petrous bone, it can hardly reach the cerebellum without forming a layer of pus under the dura mater of the lateral sinus. If this is so the pus will escape by the mastoid foramen if the latter be exposed."[4] When this condition is found, a spot beneath and slightly posterior to the mastoid foramen, below the inferior curved line of the occipital bone, will be the proper place to explore for cerebellar abscess following chronic middle ear trouble.[5] I have given Mr. Barker's points for perforation in preference to those of Mr. Caird and others, because they are safer anatomically, since they are less apt to injure the meningeal artery, the pus can be evacuated through a comparatively callous portion of the brain, and nine-tenths of these abscesses in the temporo-sphenoidal lobe occupy a space three-fourths of an inch in diameter, whose centre is one and a half inches above and behind the centre of the cartilaginous external auditory meatus.[6]

In this connection let me give the result of Spitzka's researches as to the use of exploratory aspiration. "Experience with human and experimental pathology teaches that exploratory needles should never be introduced into the internal capsule, the contiguous ganglia or the lateral ventricles, merely for exploratory purposes, unaided by positive clinical evidence of the location of the disease; but no hesitation need be felt in the puncturing of the brain for hydrocephalus."

"Accessible neoplasms of the brain, which have resisted medicinal treatment, and which continue to grow and threaten life, should be removed, for the reason that they are generally single, seldom have secondary deposits, are surrounded by an inflammatory zone of demarcation, and *always* kill by pressure."[7] These words of Amidon's admirably express the present position of surgery with regard to brain tumors. But can every case which resists medicinal treatment be confidently turned over to the surgeon with the idea that whether the case recovers or not, at least the tumor can be found, and the operation can be completed.

W. Hale White's[1] analysis of 100 brain tumors examined after death, shows how rarely such operations are feasible. Thus:

Of 45 tubercular tumors, 7 possibly could, and 3 certainly could have been removed.

Of 24 gliomata, perhaps 6, and certainly 4 might have been operated on.

2 glio-sarcoma would have been inoperable.

Of 10 sarcomata, only 1 could have been removed.

Of 5 carcinomata none ought to have been attacked, because of secondary growths or multiplicity of tumors.

5 gummata could all have been reached, but would have been, of course, amenable to medicinal treatment.

Of 4 cysts 1 could have been reached.

Of 3 tumors whose nature was doubtful, 2 would have been fit for the knife.

1 lymphoma from general contamination would have been inoperable; and finally,

1 myxoma would have been accessible.

Closely scrutinized, of this 100 cases only 12 were certainly operable, and 6 more could possibly have been successfully attacked.[2]

While unable to give statistics of completed operations for brain tumors, when we recall Horsley's remarkable series, Durante's and Keen's successes, is it at all doubtful that the mortality will greatly diminish in the near future? A rapid review of Horsley's methods will show why his success exceeds that of others.

The head must be carefully shaved the day before operation, washed thoroughly with soft soap, followed by ether, the situation of the growth localized and marked on the scalp, the head covered with lint wet with 1 : 20 carbolic lotion, and oil silk with a layer of cotton bandaged over all. A purgative should be exhibited the night previous to, with an enema on, the morning of operation.

About one hour previous to the administration of the anæsthetic a hypodermatic injection of one-quarter of a grain of morphia should be given, and, unless the heart be diseased, chloroform is preferable to ether, since ether produces more cerebral excitement. The object of administering morphia is twofold—*i. e.*, less chloroform is needed, and from Schäfer and Horsley's experiments, this drug contracts the arterioles of the central nervous system,[3] thus lessening hemorrhage.

The chief risk being septic encephalitis, the spray may be used solely as a cleanser of the atmosphere.

All incisions of the soft parts should be vertical to the skull, and include all the layers at one stroke, except the periosteum. A single flap should be thus raised, its outline being a shallow curve, in order not to divide collateral vessels, and so planned as to avoid the main scalp arteries. These indications can readily be fulfilled without interference with drainage, since the patient will lie in the supine position.

[1] Transactions American Surg. Association, vol. iii. pp. 65, et. seq.

[2] If preferred, a pair of dressing forceps can be first carried down along the needle as a guide, and withdrawn, after Hilton's method, but the spoon seems better.

[3] Barker: Macewen, Schomdorff, Trunkenbord, Greenfield, report cases; all recovered

[4] Barker: Brit. Med. Journal, December 11, 1886, p 1155.

[5] Op. cit. Cerebral abscess is three times as frequent as cerebellar or those in other portions of the encephalon.

[6] Barker: Brit. Med. Journal, 1887, vol. i. p. 407. [7] Op. cit.

[1] Guy's Hospital Reports, vol. xliii., 1886.

[2] The figures differ from those given by the author, but careful addition of the numbers given in the text sum up as I have given above.

[3] When tapping for hydrocephalus I have resorted to this method with apparent benefit.

The periosteum must now be incised, raised, and reflected; if more bone has to be removed than was originally planned the periosteum must be carefully dissected back off each new portion.

Two large trephine cuts—Horsley recommends that the crown of the instrument be of the diameter of two inches—should be made at the two extremes of the bone area to be removed, when the intervening bridge can be partially sawn through with a Heys saw, and the division completed with the bone forceps. Almost as rapid, and a far safer plan—since the bone over brain-tumors is often not thicker than cardboard—is to remove the bone with the rongeur, as modified by W. Barton Hopkins, after one or more preliminary trephine cuts of the ordinary size. In many instances the bone fragments had better be replaced, and accordingly should at once be placed and kept in a warm antiseptic solution.

Next the dura mater must be cut around four-fifths of the osseous orifice, one-eighth of an inch from the bone, so as to leave room for stitching; start the incision with a scalpel, but complete it with blunt-pointed scissors. Any arteries seen lying in the line of the proposed dural incision must be first tied, by passing ligatures through the dura, beneath and around the vessels, with a curved needle before incising the membrane.

The brain being now exposed, note first if it bulges into the wound—*i. e.*, is the intracranial tension increased? Next look for a yellowish tinge or possibly lividity, which will denote a tumor in the corona radiata beneath the cortex. Now closely scrutinize the vessels and perivascular lymphatics, noting especially "any yellowish-white patches in the walls of the latter indicating old mischief." Finally ascertain whether the brain has undergone any alterations in density, although in most subcortical tumors the diagnosis can only be made certain by an exploratory incision.

Hemorrhage has been much dreaded in the removal of brain tumors, but the fear is unfounded, for the arteries and especially the arterioles, which are chiefly concerned in such operations, run perpendicular to the cerebral surface and sponge-pressure soon checks all bleeding. Should this fail, ligature of the larger vessels must be tried, but if their walls are too fragile[1] to stand ligation, forcipressure is alone available. In one case at least, Weir's,[2] continuous pressure with iodoform-gauze packing failed to prevent fatal secondary, or rather recurrent hemorrhage, and the operator declared that should a similar case occur in his practice he would leave one or more pressure-forceps on the bleeding vessels for from twenty-four to forty-eight hours. Fluhrer[3] has shown that the ligature often fails to hold on the vessels of the pia mater, and advises leaving Nunneley's artery-forceps on any bleeding points until the instruments separate of themselves. I recognized the advantage of this practice recently, when assisting Dr. Simes in a case of subdural hemorrhage proceeding from a wounded artery of the pia mater; here a small wire serre-fine was substituted for the pressure-forceps, and left *in situ* for days. As the cerebral arteries are terminal, avoid every vessel possible, this end being often attainable by lifting them out of the sulci between the convolutions, and after removing the subjacent brain, replacing the pia mater. Horsley thinks that if any thrombosis should occur in these vessels it would only be temporary. If one of the large venous sinuses be wounded during an operation, its ligation is a perfectly safe procedure, healing occurring as in veins, and collateral vessels enlarging alongside of the occluded channel. Sponge-implantation or antiseptic tampons will always temporarily and often permanently[1] arrest the bleeding from a wounded sinus. The risk of air embolism is not imaginary, but can be obviated by keeping the head low and the wound well irrigated. When it is evident that a sinus must be wounded in a proposed operation it had better be primarily ligated as in a case of Küster's.[2]

Incisions into the brain must always be clean-cut, be vertical to the surface, and directed into the corona radiata, when necessary, so as to avoid damage to the fibres coming from other portions of the cortex, or those surrounding the seat of operation. The paths pursued by the fibres from the cortex must be kept constantly in mind when incising the brain, and where possible portions of each centre involved should be left, as under such circumstances the coarser movements of the part governed will often be retained.[3] Finally, it is absolutely essential to be thoroughly familiar with the encephalic blood supply to decide where to make the incisions, in order to have a full understanding as to what portions of the remainder of the organs certainly will be deprived of their blood supply, and what portions may possibly be rendered avascular.

When a portion of brain is excised, the underlying cerebral tissue soon bulges up almost to a level with the cortex while the cut edges evert, and if "less brain than bone is removed," protrusion—*i. e.*, an acute hernia cerebri forms. A persistence of this dangerous condition is prevented by the weight and primary union of the scalp-flap; the advantages afforded by the large one recommended are thus apparent.

After all oozing has been arrested by gentle sponge-pressure or ligatures, in my judgment the flap of dura mater, if the operative procedures have left it intact, should now be carefully sutured with chromic catgut to the margins of the membranous opening, leaving space for the easy passage of a drainage tube at the most dependent point. The scalp-flap should then be laid down and secured by stitches of medium silk placed one centimetre (about one-third of an inch) apart with horsehair sutures between.

When brain substance has been removed drainage should not be kept up more than twenty-four hours, because firm union must be secured within four or five days, and a certain degree of pressure should in the meantime be exercised upon the brain which tends to protrude, in order to avoid hernia of the organ. Again, there should be some protective between the brain and scalp in the form of soft—*i. e.*, non-inflammatory—con-

[1] Dr. W. W. Keen informs me he met with this difficulty, and succeeded by drawing the catgut only tight enough nearly to close the lumen of the vessels.

[2] Birdsall and Weir: Annals of Surgery, August, 1887, p. 149.

[3] Op. cit.

[1] Author's article, International Encyclopædia of Surgery, on "Head Injuries;" also Hopkins, Annals of Surgery, July, 1885, p. 65.

[2] See Senn on "Air-embolism," or Berliner klin. Wochenschrift, p. 673, 1881.

[3] See H. Jackson in discussion on Horsley's paper "Brain Surgery," British Med. Journal, 1886, vol. ii. pp. 670-675.

nective tissue. Briefly, all these desirable results are obtained by:

1. Placing a tube at the most dependent portion of the wound when the patient lies supine, for twenty-four hours only, to drain all blood and serum.

2. After twenty-four hours remove the tube and re-dress as at first antiseptically, making "firm but gentle pressure over the centre of the flap."

3. If on the third day pain and throbbing in the wound be complained of, and the flap, on exposing the wound, be found "distended in the centre the periphery being firmly united," undue collection of wound-fluids has taken place. If it appears probable that the pressure will break down the union of the flap, the track of the drainage tube must be gently opened up with a probe, and some of the pent up fluid let out; if the union seems safe to hold, let the accumulation alone, since after the evacuation of the fluid the advantages of supporting pressure are lost. The tension at most usually requires to be relieved but once. This liquid cushion, until absorbed, represses the tendency to hernia, promotes absorption by the meningeal lymphatics of all inflammatory exudates, thus favoring rapid union, and serves as a scaffolding for the formation of normal connective tissue which is formed within a few days, at least in the lower animals.

After from five to seven days boric acid, cotton, and collodion for support are better than the ordinary antiseptic dressing. The stitches can be removed any time after the first week.

Should a second operation become necessary, or a primary one for brain injuries which have resulted in scars of the cortex, especially those produced by traumatic losses of brain-substance, which have healed after free suppuration, great caution must be exercised, since the cicatrices often displace large vessels, and are traversed by veins of considerable size.

Encouraged by Horsley's success in excising brain-scars for epilepsy, Hughlings Jackson[1] has suggested the propriety of removing the seat of "the discharging lesion," in cases of the spontaneous variety, when the spasms begin "very locally, deliberately, and when the fits are often repeated."

The theoretical advantages of this suggestion have been essentially proved by the following case of Macewen's, which certainly seemed cured by the removal of the site of the discharging lesion,[2] as well as by one of Jackson's, operated on by Horsley.

A young man in perfect health, having received two years previously a skull injury, which in six weeks resulted in headache and epilepsy, came under Macewen's care, suffering from one hundred or more attacks per diem; in which, however, he never entirely lost consciousness. The muscular spasms were limited to the side opposite that of injury, at which point a slight depression was detected. Trephining here at once uncovered the brain, revealing an old rupture of the membranes. A small circumscribed area of non-suppurative inflammatory softening existed beneath the bone-opening. Although apparently thoroughly anæsthetized, the removal of the diseased tissue with a sharp spoon at once produced a violent convulsion. All pain and convulsions ceased after the operation.

In traumatic epilepsy, then, in addition to the removal of all depressed bone, cicatrices of the brain and membranes must be freely excised, including, if possible, the site of the discharging lesion.

Cysts should, after the same precautions as advised for cerebral tumors, be carefully curetted and drained, preferably by the tube, but recognizing the risk of hernia cerebri by this method of treatment.

For the successful therapeusis of hernia cerebri, it is requisite to place absolute confidence in the indications for treatment so plainly discernible after a careful study of the pathology of this affection. There are two principal and one subsidiary factors in the production of hernia cerebri. As has been said, the normal intracranial tension after incision of the membranes and removal of a portion of brain, suffices to cause cerebral protrusion, if less brain tissue than bone is removed. Hence, the removal of the support of the membranes and bone, plus increased tension are the chief causes, and, in consequence, anything favoring these conditions is to be avoided. What can increase intracranial tension? Manifestly only encephalitis, which is also productive of the subsidiary, but effective factor, softening of the cerebral tissues. How can we best prevent intracranial inflammation? By strict asepsis. But is this all that is essential? No; for the normal intracranial tension, as we have just seen, is almost efficient by itself, so that suturing of the damaged membranes must be done when possible. Where the suturing either cannot be done, or seems likely to fail, Horsley's modified drainage, to keep up due restraining pressure should be tried. Finally, I would make a tentative suggestion, grounded upon the treatment of a somewhat similar condition of the membranes of the spinal cord, viz., the suturing to the margins of the membranous defect, a thin slice of aseptic sponge; in other words, a sponge graft, which may serve, after infiltration with and organization of the contained white cells, as an effectual barrier against brain protrusion. Moreover, whenever possible, replacement of the bone fragments, either in toto, or after Macewen's plan, will in many cases afford the requisite amount of restraining pressure.

I would here call your attention to the steadily lessening mortality attendant upon the strict aseptic treatment, aided by gentle pressure, of hernia cerebri, and the avoidance of anything which will weaken the support of the layer of granulations, which forms, or tends to form, over the exterior of all brain protrusions, which is the sole barrier against further extrusion of the cranial contents, and which by its organization into contracting scar-tissue finally reduces the hernia.

The experience of the last four years has proven the truth of what I advanced years ago, that ligating, excising, and cauterizing these protrusions, while at times ending in recovery, is unscientific, because opposed to the indications derived from the pathology of the affection; and that such practices are attended by a rate of mortality far higher than that just advocated. The danger does not reside in the mere protrusion of brain-substance, but in the *encephalitis* which is the cause of the hernia, or is consequent upon it.

In conclusion, let me venture the prophecy, that those of my hearers who now consider much of what I have advanced to-night as far too heroic, will live to look upon my suggestions as mere matters of course, and as little to be reprobated as ovariotomy.

[1] British Medical Journal, October 9, 1886.

[2] Senn's Four Months among the Surgeons of Europe, p. 17.

ORIGINAL ARTICLES.

EXPERIMENTAL STUDIES ON THE CAUSATION OF TYPHOID FEVER, WITH SPECIAL REFERENCE TO THE OUTBREAK AT IRON MOUNTAIN, MICH.[1]

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AND
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LAST October, having heard of the prevalence of a severe epidemic of typhoid fever at Iron Mountain, Michigan, we requested Dr. G. B. Johnson, a physician of that place, to forward to us a sample of the drinking water used by families in which the disease had appeared. This request was immediately complied with, and we determined to make the most thorough tests possible. The ordinary sanitary analysis, which consists in the determination of free and albuminoid ammonia, chlorine, nitrates, and nitrites, we determined would be altogether inadequate. Besides, as we afterward learned, such an analysis had already been made by the competent chemists of the Chapin mine at Iron Mountain. The results of this analysis, together with those of other waters in the village, made by the same chemists, will be given further on.

After much deliberation, we determined to inoculate sterilized meat preparations and sterilized milk with the suspected water, and then to keep the material at or near the temperature of the human body for varying periods of time, and to ascertain whether or not there would be any poisons developed by the bacteria which were suspected of being in the water. The following are the details of the method:

A number of Erlenmeyer flasks of 400 c. c. capacity were thoroughly cleansed and rinsed with distilled water, then dried in an air-bath. When dry, they were tightly closed with plugs of cotton, and heated for two hours at 140°–150° C.

A litre of fresh milk was placed in a large flask, plugged with cotton, and heated in a Koch's steam sterilizing apparatus for over three hours. The flask was then taken out, and, while yet warm, its contents were transferred by means of a sterilized graduate and sterilized funnel, in portions of 130 c. c. each, to the above-mentioned sterilized, small flasks. The transfer was made as speedily as possible, and the flasks were immediately plugged with cotton, and capped with pieces of filter-paper, which were held in position by means of rubber bands. The flasks, thus prepared, were placed in the steam sterilizing apparatus, and heated for two hours. This was found to produce perfect sterilization.

One pound of lean beef was chopped up finely and treated with one litre of distilled water. The whole was set aside in a cool place for twenty-four hours, being occasionally well shaken. It was then filtered through cloth, the filtrate was diluted to one litre with distilled water, placed in a large beaker and heated almost to boiling. Then twenty-one grammes of peptone, and five grammes of pure sodium chloride were added. While still hot, the solution was carefully neutralized with sodium carbonate, then placed in the steam sterilizer and heated for two and one-half hours. After removal, and when cold, it was filtered through paper; the filtrate was made up to one litre with distilled water, placed in a large assay flask, plugged with cotton, and heated in the steam sterilizer for three hours. After cooling it was transferred to the sterilized flasks, which were plugged with cotton and heated for two hours in the steam sterilizer.

Nov. 9, 3 P. M. Some of these flasks were inoculated with Iron Mountain water; others with some water which we had received from Lansing, Mich., and which had been used by a family, some members of which suffered from typhoid fever; and one each of the milk and meat preparations was left without inoculation, and used as controls.

Two of the meat and two of the milk flasks were inoculated with 30 c. c., each, of the Iron Mountain water, and one meat and one milk flask with 50 c. c., each, of the same water. The same number of flasks, and the same amount of water were used with the Lansing water. Thus we had six flasks inoculated with the Iron Mountain water, six with the Lansing water, and two controls.

These flasks were then placed in a Koch's vegetation apparatus and kept at from 30°–38° C.

11th. Forty-seven and a half hours after the inoculations were made, four flasks, one containing meat preparation and Iron Mountain water; the second, milk and Iron Mountain water; the third, meat preparation and Lansing water; and the fourth, milk and Lansing water, were removed from the vegetation trough, and examined.

The meat preparation inoculated with Iron Mountain water had a strong, repulsive odor, showed an abundant, white bacterial growth, and was neutral in reaction. It was filtered, rendered feebly acid with hydrochloric acid, extracted with ether, then rendered alkaline with sodium carbonate, and extracted successively with ether, benzole, and amylic alcohol.

The acid ether extract was allowed to evaporate spontaneously, the residue was dissolved in alcohol, acidulated with dilute hydrochloric acid and evaporated on the water bath. The reddish residue was dissolved in water, filtered and tested for ptomaines. It gave no alkaloidal reactions, and contained no poison.

The alkaline ether extract, treated in the same manner as the acid extract, gave slight precipitates with phosphomolybdic acid and platinum chloride, but was also inert.

The alkaline benzole extract gave no alkaloidal reaction, and was free from poisonous properties.

The amylic alcohol extract gave slight precipitates, but if it contained any poison the amount was too small to have any effect upon animals.

[1] A Preliminary Report to the State Board of Health of Michigan.

After the above extractions had been made, the fluid was again rendered acid with dilute hydrochloric acid, and then evaporated in vacuo at 40° C. The residue was treated with absolute alcohol, filtered and again evaporated in vacuo, again taken up with absolute alcohol and now allowed to evaporate spontaneously. The final residue dissolved in water gave precipitates with many of the alkaloidal reagents, but showed no poisonous properties.

We were now convinced that no poison had yet developed in the meat preparation inoculated with the Iron Mountain water.

Similar examinations were made with the milk and Iron Mountain water, the meat preparation and Lansing water, and the milk and Lansing water, and similar results, so far at least as the failure to detect any poison is concerned, were reached. Indeed, the chemical reactions were marked by only slight variations. The bacterial growths were much more abundant in the Iron Mountain water inoculations than in the others.

16th, seven days after the inoculations were made, four flasks, similar to those previously examined, were removed from the vegetation apparatus, and their contents were submitted to analyses similar to those already detailed.

The meat preparation inoculated with the Iron Mountain water was strongly alkaline in reaction and gave off a marked amine odor. After being acidified with hydrochloric acid, it was evaporated on the water-bath, the residue was extracted with absolute alcohol and filtered. The filtrate gave a precipitate with an alcoholic solution of mercuric chloride, but the precipitate proved readily soluble in slight excess of the precipitant. The mercury was removed by precipitation with hydrogen sulphide and filtration. The filtrate was evaporated on a water-bath, leaving a syrupy residue with some crystals of sodium chloride. The syrup was poured off from the crystals, taken up with water, and a portion of it (only a few drops of the syrup) was injected by means of a hypodermatic syringe under the skin on the back of a cat. The temperature of the cat before the injection, taken with care and with a tested thermometer in the axilla, was 99.5°. The following is a record of the effect observed in the experiment:

EXPERIMENT I.—Temperature before the injection, 99.5°.
Time of injection, 3:14.
3:24. Temp. 100.2°.
3:44. Temp. 101.5°. The cat drinks a large quantity of water, although she had an abundant supply of milk, which had been within her reach during the day, and of which she had previously partaken. After drinking there is considerable retching, but no vomiting. The respirations are greatly accelerated and jerky. The pupils are dilated, but respond to light.
3:54. Temp. 101.8°.
4:19. Temp. 101.8°.
4:30. Temp. 101.5°.
The temperature was not again taken until the next morning, when it was found to be 99.5°. The animal seemed to have wholly recovered from any discomfort which it had suffered.

EXPERIMENT II.—Two days later a similar amount of the syrupy residue was administered to the same cat in the same manner.
Temperature before the injection, 99.5°
Time of injection, 4:30.
5:00. Temp. 102°.
The temperature was not taken again until next morning, when it was found to be 99.5°.

EXPERIMENT III.—A similar amount of the syrup was administered to another cat.
Temperature before the injection, 100°.
Time of injection, 3:33.
4:08. Temp. 101°.
4:33. Temp. 101°.
4:50. Temp. 101.6°.

EXPERIMENT IV.—*Dec. 1.* A much larger amount of the syrup than that used in the preceding experiments was injected under the skin on the back of a large Maltese cat.
Temperature before the injection, 99.5.°
Time of injection, 4:03.
4:19. Temp. 94°; marked salivation.
4:44. Temp. 98°; pupils are widely dilated. The cat vomits heavily and persistently.
5:30. Temp. 100°. The retching continues and a watery secretion flows from the mouth, nose, and eyes.
6:00. Temp. 100°. Seems in a stupor.
2d. 8:00 A.M. Temp. 103.4°. Stupor continues.
1:40 P.M. Temp. 103.4°. When touched on the abdomen the animal cries as if in pain.
4:20. Temp. 104.1°. The animal seems much excited and dashed through the door of the room once, though she had previously been very quiet.
3d. 9:15 A.M. Temp. 99.6°. Seems to be recovering, but still looks very haggard. Has eaten nothing since the injection.
1:40 P.M. Temp. 100.8°. Eats some meat.
4th. 8:50 A.M. Temp. 99.5°.
The cat was now killed with chloroform and careful examination made of the abdominal and thoracic organs. No abnormality could be found.

EXPERIMENT V.—Some of the syrup obtained from the milk which was inoculated with Iron Mountain water was injected under the skin on the back of cat. The temperature in this case was taken in the rectum.
Temperature before the injection, 102.5°.
Time of the injection, 3:55 P.M., *Dec. 9.*
4:40. Temp. 97.6°.
5:25. Temp. 100.9°.
10th. 9:05 A.M. Temp. 103.6°.
2:40 P.M. Temp. 102.4°.

Both the meat preparation and the milk, which had been inoculated with the Lansing water, were carried through the same chemical processes to which the Iron Mountain preparation had been submitted, but they yielded only traces of the syrupy residue, and these when injected into animals were without effect. These served as controls for the experiments already detailed, and showed that there was nothing in the meat preparation or milk themselves which could cause the effects observed. As further control, however, the sterilized meat preparation which had been prepared as a control, and which had remained in the vegetation trough for forty days at the temperature of the body without showing any bacterial growth, was treated in the same manner that the other preparations had been, and the alcoholic residue was injected into animals without producing any effect.

Evidently the syrupy residue, which was used in the above experiments, contains a poisonous ptomaine,

the special or characteristic production of the micro-organisms present in the Iron Mountain water; and if these are the germs of typhoid fever, this syrup contains the special poison of typhoid fever. In the intestines of a man suffering from typhoid fever, the germs grow and constantly produce the ptomaine which is absorbed and causes the symptoms of the disease. If our extract contains the typhoid fever poison, we should expect it to produce, when employed as in the above experiments, in general the symptoms of the disease, but we should expect these symptoms to be temporary. We think that this is substantially what is shown by the experiments. The primary depression of temperature observed when the larger amounts were employed, is certainly nothing more than might be expected from a large dose of a powerful poison; then the elevation of temperature which followed was in the majority of the experiments at least sufficiently marked. We did not expect to find in the animal examined the characteristic intestinal lesions of typhoid fever, as we suppose these to be due to the growth and activity of the microörganism, or to the local action of the ptomaine where it exists in largest amount—the place of its formation.

In 1885, Brieger,[1] of Berlin, obtained from pure cultures of the Eberth bacillus, a ptomaine which in guinea-pigs produced a slight flow of saliva, frequency of respiration, dilatation of the pupils, profuse diarrhœa, paralysis, and death within from twenty-four to forty-eight hours. Post-mortem examination showed the heart in systole, the lungs hyperæmic, and the intestines contracted and pale. This substance Brieger considers the special poison of typhoid fever, and calls it typhotoxine, and it may be that we shall find that it forms the active principle of our syrupy residue. At present, however, the two do not seem to be identical. Brieger found no elevation of temperature, at least he does not refer to it, while property of elevating the temperature seems to be the most characteristic effect of the Iron Mountain water poison. Typhotoxine produced profuse diarrhœa; while the other poison has shown no such effect. It may be remarked here that the fever at Iron Mountain has been characterized by the existence of constipation in the majority of cases.

However, these differences in physiological action may be due to the fact that different animals were used, guinea-pigs in one case, and cats in the other.

In 1880, Eberth[2] first described an oval bacillus, which he had found in the spleen and mesenteric glands of persons dead of typhoid fever, and which is now generally believed to be the true germ of this disease. Before Eberth, Koch had observed this germ and had taken micro-photographs of it. Even before Koch, Browicz,[1] Sokoloff,[2] Fischel,[3] and others had individually observed in the tissues of typhoid subjects, oval bacilli, which were probably identical with those of Eberth and Koch.

These bacilli are about one-third as large as the red blood-corpuscles of man, and about three times as long as broad; though they may grow to long threads. The short rods have plainly rounded ends, and very active movements. They are affected by the aniline colors less than most germs, and are best stained by methylin-blue. Whether or not this germ produces spores is a question of much interest to bacteriologists. Gaffky[4] found that in potato, gelatine and blood serum cultures, kept at the temperature of the body, spores were formed. This observation has been confirmed by Sternberg,[5] Flügge and Bolton,[6] Vilchour,[7] and Chantemesse and Vidal;[8] though on the other hand, Buchner,[9] Seitz,[10] Michael,[11] and Fränkel and Simmonds[12] have, after numerous investigations, been unable to detect any spore formation. This question is also of interest to sanitarians, since germ-spores resist disinfectants, which destroy germs growing without spores. Very recently Birch-Hirschfeld[13] has apparently settled this question by detecting the spores by growing the bacillus in stained cultures. Another point of interest to sanitarians is the capability of this germ to resist high and low temperatures. Prudden[14] found them capable of growth after having been frozen in ice for 103 days and after having been heated to 132.8° F. This confirms the belief of sanitarians in this country that typhoid fever may be induced by the use of impure ice. The same investigations showed that frequent, alternate freezing and thawing did destroy the germ.

Still another point of interest is the fact that this germ will grow in various media. Seitz,[15] and Wolfhügel and Riedel[16] found that it grew abundantly in milk. In our experiments, as has been seen, we obtained the poisonous extract from both the milk and meat cultures, though it was more abundant in the latter. It is worthy of note that the milk culture became acid in reaction, a fact which has also been observed by Löffler.[17] Seitz found that while the bacillus grew in both acid and alkaline urine, its

[1] Weitere Untersuchungen über Ptomaine.
[2] Virchow's Archiv, B. 81 and 83.

[1] Birch-Hirschfeld's Lehrbuch der pathologische Anatomie.
[2] Virchow's Archiv, B. 66.
[3] Prager medicinische Wochenshrift, 1878.
[4] Mittheilungen aus d. kais. Gesundheitsamte, B. 2.
[5] MED. NEWS, April, 1887.
[6] Zeitschrift für Hygiene, B. 1.
[7] Lancet, 1886.
[8] Archives de Physiologie, 1887.
[9] Archiv für Hygiene, B. 3.
[10] Bacteriologische Studien zür Typhusätiologie, 1886.
[11] Fortschritte der Medicin, 1886.
[12] Die ätiologische Bedeutung des Typhusbacillus, 1886.
[13] Archiv für Hygiene, B. 7.
[14] Medical Record, 1887.
[15] Loc. cit.
[16] Arbeiten aus dem kais. Gesundheitsamte, B. 1.
[17] Berliner klinische Wochenschrift, 1887.

growth was more abundant in the latter. However, it is probably of no sanitary importance whether the germ be taken into the stomach in milk or in water, for, in either case, on reaching the small intestine, it will find an alkaline medium in which to multiply. Wolfhügel and Riedel found that the bacillus multiplied in water which had been boiled, when kept at 60.8° F. Bolton found the "spores" in stagnant water a month and longer after the introduction of the germ. Hochstetter[1] found the germ in artificial seltzer water a week after its introduction. Seitz found that quinine, kairin, antipyrin, thallin, salicylic acid, and calomel in certain proportions arrest the growth of the germ in cultures, but that naphthalin, which seems to be a useful intestinal disinfectant in some diseases, is without effect upon the typhoid bacillus.

Upon potato, the typhoid bacillus shows a characteristic growth. It forms a mould wholly invisible to the unaided eye. After three or four days, if kept at ordinary temperature, after two days if kept at the temperature of the body, the surface of the potato looks moist, but no other change is observable. If the surface be scraped with a sterilized needle, and the material thus obtained be examined under a sufficient power, it will be found to consist of active, moving typhoid bacilli. By making potato cultures, this bacillus can be distinguished from all known germs. Indeed, the best bacteriologists regard the potato culture as the crucial test for the typhoid bacillus, and this test must always be made before one can be certain that he has this germ.

That the Iron Mountain water contained the typhoid bacillus was demonstrated by the potato culture and by microscopical examination, as well as by a physiological experiment. The first cultures were made as has been stated, November 9th, about two weeks after the water had been received. These cultures contained, besides the typhoid bacillus, germs ordinarily found in water; but the second cultures, made December 7th, contained only the typhoid bacillus. These had either destroyed or outlived the non-pathogenic organisms. This is an interesting fact, since it shows the poisonous germ to be very tenacious of life. Moreover, this observation is at variance with that of Kraus,[2] who found that the ordinary water bacteria destroyed the typhoid bacillus, though this difference may be due to the different temperatures at which the water was kept. Kraus kept the water in his experiment at 51° F., while the Iron Mountain water was kept in a jug, in a basement room, the temperature of which was about 68° F.

In meat peptone preparations the bacillus formed a scum, which had the lustre of mother-of-pearl, and was bluish-gray, becoming slightly brownish after some weeks. Some of this growth was removed with a sterilized rod, rubbed with two c. c. of water, which, when boiled, was taken into a large, sterilized hypodermatic syringe and injected into the abdominal cavity of a cat. Before the injection the hair was cut from the abdomen at the place of injection, and the skin was washed first with absolute alcohol, and then with one-half per cent. solution of mercuric chloride.

The injection was made at 2:25 P. M., December 20th. The temperature of the cat, taken in the rectum, before the injection, was 101.5°. Twenty minutes after the injection, there was a fecal movement, and a few moments later, the animal vomited. The vomiting was repeated four or five times during the afternoon. When not vomiting or attempting to do so, the animal seemed greatly prostrated. She rested on her abdomen with her chin upon the floor and could not be easily aroused. She made several attempts at stool, but there was no purging or diarrhœa.

Dec. 21, 7 : 45 A. M. The cat still lies in the same position. She refuses food. The temperature in the rectum is 96.4°.

2 : 30 P. M. Cat still lies upon the floor and refuses milk. Temperature 98.5°.

4 : 20 P. M. Temperature 101.4°.

5 : 30 P. M. Temperature 101.8°.

22d, 8 A. M. Cat seems better, but refuses food, and is very weak. She is unable to cry aloud; temperature 103°.

2 : 30 P. M. Takes some milk; temperature 104°.

4 : 20 P. M. Temperature 104.4°.

23d. The cat seems to be recovering rapidly. She takes food greedily, and the temperature is normal.

The animal was then killed with chloroform. There was nothing abnormal at the point of injection. Nothing abnormal could be found in the peritoneal cavity. No trace of the small masses of injected bacilli could be found. The mucous membrane of the small intestine was slightly hyperæmic and in the region of Peyer's glands were observed four little ulcerations about the size of a pin head. Two or three similar ones were found in the ascending colon, but one of these was about four times as large as those in the small intestine, and around this was quite an area marked by inflammatory action. Careful inspection of all the abdominal and thoracic organs failed to reveal any further abnormality.

This result was very satisfactory, and leaves no room for doubt concerning the existence of the specific poison of typhoid fever in the Iron Mountain water.

It is to be noted that the lower animals are not subject to long-continued typhoid fever as is man, and a temporary effect from which the animal would within a few days die or recover is all that can be expected. Besides, the lesions in our experiment were certainly satisfactory. We hope to repeat this experiment several times.

[1] Centralblatt für Bakteriologie und Parasitenkunde, B. I.

[2] Archiv für Hygiene, B. 6.

It will be interesting to know something about the sanitary condition of Iron Mountain. For our information upon this point we are wholly indebted to Drs. J. A. Crowell and G. B. Johnson, physicians to the Chapin mine, who have been kind enough to answer our numerous inquiries.

Iron Mountain is a village with a permanent population of about 4800, and during the summer months this number is augmented by some 2000 floating population. As there are only about 1000 buildings all told, and as some of the dwellings are very small, the village is very much crowded. The village is situated in a valley, the lowest portion of which was once a swamp, extending north and south. Upon each side the hills are steep, and portions of the village lie upon these hillsides. The soil is drift of sand and gravel, except in the lowest portions of the valley, where the drift is overlaid with vegetable mould. The depth of the drift is very variable. In some places, the ledge of rock, which is of the Huronian strata, outcrops on the hilltops; in others, on the hillsides; and in others, in the valley. The ledge stands nearly on edge, dipping at from 70 degrees to 80 degrees to the north. The drift is so porous that within twenty-four hours after heavy rains, the surface becomes dry.

A portion of the village, about three hundred houses, has a system of water-supply, the source of which is a shaft forty feet deep, and far away from any source of contamination. An analysis of this water by Messrs. Brewster and Brown, chemists to the Chapin mine, shows the following:

Free ammonia, parts per million	0.02
Albuminoid ammonia, parts per million	0 05
Chlorine, grains per gallon	0.4
Calcium carbonate, grains per gallon	10 476
Magnesium carbonate, grains per gallon	5.324

Dr. Crowell writes: "Those drinking this water have been almost wholly exempt from the fever, and yet there have been some remarkable exceptions, a whole family coming down, while all the neighbors were free from sickness, and all drinking of this water."

The remaining portion of the village, the part in which the fever prevailed, derives its drinking water from wells sunk from six to twenty feet. There are no sewers or other means of removing filth. Privy wells are used, and slops and garbage are thrown out in backyards and streets. During the past summer, a most disagreeable odor of decomposing matter greeted one in passing along the street. There is a ditch running through the village, which conveys the water from the mine to a small lake beyond the village. This ditch, quite naturally, is used by many as an open sewer, and the ice supplied the village last summer was taken from this small lake into which the ditch empties.

Dr. Johnson writes that the outbreak of typhoid fever appeared early in August, following a severe epidemic of dysentery. Up to December 21st, he knew of three hundred and fifty cases, about ten per cent. of which had terminated fatally. The later cases, however, are much more malignant than those which occurred during the summer and early fall. Persons have presented themselves daily at the office for a week, complaining of pain in head, chest, and back, loss of appetite, and distressing feeling of langour, but have shown no elevation of temperature, then, within twenty four hours, the temperature will be up to 104° or 105°. Diarrhœa was not present in the majority of the cases; indeed, constipation was more frequently the source of trouble.

The well (known as the Davis well) from which the water was taken which was sent to us, is sixteen feet deep. It is situated under the house, and is forty feet from the stables and privy. Thirteen of the inmates of the house had the fever. (The doctors have failed to inform us of the total number occupying the house or using the water.)

An analysis of the water by Messrs. Brewster and Brown shows the following:

Free ammonia, parts per million	2.27
Albuminoid ammonia, parts per million	0.26
Chlorine, grains per gallon	8.00

These figures give unquestionable proof that the water is contaminated with animal excretions.

Manning's well, situated just across the street from the Davis well, is a driven well, carried down into the rock, and furnishes a fairly good water, notwithstanding the fact that surroundings are bad. Brewster and Brown give the following result of their analysis of this water:

Free ammonia, parts per million	0.017
Albuminoid ammonia, parts per million	0.070
Chlorine, grains per gallon	0.050

Dr. Crowell informs us that it has been decided to supply the village with water from some springs, the analysis of which shows the following figures:

Free ammonia, parts per million	0.032
Albuminoid ammonia, parts per million	0.039
Chlorine, grains per gallon	0.10
Calcium carbonate, grains per gallon	5.090
Magnesium carbonate, grains per gallon	3.558

There can be no question about the need of a supply of pure water. This should be obtained by all means, and some provision should be made for disposing of excrement, slops, and garbage. It matters not how cold it may be this winter, the low temperature will not destroy the typhoid germ unless there be successions of freezing and thawing. And with the soil filled with these germs, some of them will be likely to find their way into the air breathed, food eaten, or water drank, and produce the disease. It should also be remembered that typhoid fever may be caused by the use of impure ice.

Since writing the above, Dr. Crowell has furnished us with some additional facts of interest. "The fever was brought to the village by a man from a

railroad construction camp. This man died a few days after his arrival. The symptoms were very variable. In some they were typical from beginning to end, but in others they were very irregular. Constipation for the first ten days, and frequently throughout the whole course of the disease existed in half the cases; and the abdominal symptoms, pain, tenderness, tympanites, gurgling in the right iliac fossa, although certainly present in many cases, were conspicuously absent in a very large number. Intestinal hemorrhage occurred quite frequently, and was the cause of death in one case in which we could never find any elevation of temperature. A subnormal temperature was very frequently observed, not only in the start, but throughout the disease. Failure of heart power, perforation, hemorrhage, pneumonia, and meningitis, in the order named, were the causes of death. In only one case could we get an autopsy. It was one in which the symptoms were least like typhoid. The temperature was low, and there were no abdominal symptoms, and no diarrhœa; yet the ileum was darkly congested, there were ulcerations of Peyer's patches, and although no perforation could be seen, when the gut was inflated, it slowly collapsed."

In conclusion, we may state that there cannot be any doubt that the epidemic at Iron Mountain is one of genuine typhoid fever. The intestinal lesions were observed in one post-mortem. Similar lesions were found in the cat, the specific germ of typhoid fever exists in the water, and the chemical poison, or ptomaine, is formed by the growth of this germ.

It is well known that typhoid fever invariably follows dry seasons, and is coincident with low water in wells (see paper by the Secretary of the Michigan State Board of Health, Report for 1884, pp. 89–114). There are, on an average, about one thousand deaths and ten thousand cases of sickness from this disease annually in Michigan. These figures can be greatly reduced if people will cease polluting the soil about their houses with slops, garbage, cesspools, and privy vaults, and will see to it that their drinking water is pure beyond all question. When there is any doubt the water should be boiled, but it should be remembered that, while the typhoid germ most frequently finds its way into the body with the drinking water, it may be taken in with any food, and even with the air. When a case of typhoid fever occurs, all discharges must be thoroughly disinfected, and the earth, water, and air about our homes must be pure if we escape this disease altogether.

OMPHALITIS.

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OMPHALITIS, or inflammation of the umbilicus, is an affection which may be easily overlooked. Pain, soreness, or distress in the region of the umbilicus, associated with intestinal obstruction, or various abdominal disorders, among which may be mentioned the initial colic of a typhlitis or general peritonitis, will, no doubt, be referred to proper sources. Most of the cases of omphalitis belong to the class of minor ailments, and in the vast majority of such cases a physician is not consulted. If inspection of the umbilicus is not practised in cases of pain, soreness, or distress in this region, omphalitis, when it exists, will not be detected. The affection may occur at any time of life. I give below the history of two cases lately observed.

CASE I.—June, 1887. A physician, æt. fifty-five, with cirrhosis of the liver and ascites, complained of pain at the umbilicus, which he referred to dragging by the liver. At his request I examined the umbilicus, and at first glance detected a dark ring around the umbilicus about one inch from the centre, and one-half inch in diameter. The navel was then closely scrutinized, and moisture and excessive redness appeared. At the bottom of the umbilicus there were five or six spots of minute ulceration and a few drops of pus. The umbilicus was carefully probed, but no fistula existed. Ordered injections of zinc sulphate (gr. iv to aq. ℥j), after which the umbilicus was to be carefully dried by absorbent cotton, then sprinkled with powdered iodoform to be retained by packing the navel with absorbent cotton. The symptoms quickly disappeared.

CASE II.—Mrs. W., in August, 1887, brought her son, æt. five, to my office. complaining of pain and distress in the umbilical region. I questioned the lady closely about gastro-intestinal symptoms, but got no history of such. The child's bowels moved regularly and painlessly, and appetite, digestion, and general appearance were normal. Puzzled to explain the symptoms, I inspected the navel, and found omphalitis, due to a neglect of toilet. I ordered thorough ablutions and antiseptic applications. Case did not return.

Causes of Omphalitis.—The causes of omphalitis neonatorum, or inflammation of the navel in infants, may be found described in text-books on obstetrics or diseases of children. Traction upon the cord, retarded birth, friction, and the access of germs have been assumed to bear a causal relation to this form of omphalitis. The causes of omphalitis proper, may be enumerated as follows:

(1) Want of cleanliness in the umbilical toilet.

(2) Injuries, blows, wounds, etc. From irritation of rough edges of starched shirts, etc.

(3) From vesication or counter-irritation applied to the surface of the abdomen.

(4) From umbilical fistulæ and herniæ; from abscess discharging at the umbilicus; from umbilical malformations,[1] and from furuncles in the umbilical region.

[1] Holmes's Syst. Surg., Amer. ed., vol. iii. p. 853.

Periomphalitis, or inflammation of the tissues surrounding the umbilicus, may also be caused by the above agencies. Thus, in Whitman's case (loc. cit.), is said, "On examination, it was seen that inflammation and ulceration extended to some distance around the umbilicus."

Symptoms.—Soreness, distress, and pain, at the umbilicus. Patients will sometimes try to relieve their distress by rubbing the umbilicus, or by placing the tip of the finger over the umbilicus, and rotating the finger. Periomphalic redness may be present if the inflammation is severe. Redness of the umbilicus in the milder cases may be seen by putting the umbilicus upon the stretch so as to obliterate the folds, and permit deep inspection. Some amount of swelling supervenes. In simple uncomplicated inflammation of the umbilicus, not occurring as a sequel of hernia, abscess, fistula, or fungus umbilici, I have never seen pouting or protrusion.

An offensive odor sometimes reveals the trouble, as was the result in Whitman's case (loc. cit.). Periomphalic ulceration is at times present. Pus and deep omphalic ulcers may be seen, as in Case I. In some cases a ring of black color encircles the navel. This ring is formed from umbilical discharges and extraneous matter.

Diagnosis.—When patients complain of soreness, distress, or pain at the navel, when nurses or mothers speak of foul odors or discharges therefrom, an ocular inspection of the umbilicus should always be made. The whole depth of the umbilicus should be examined (if necessary with a lens and concentrated light). Simple omphalitis will be easily made out.

The smeared circle around the umbilicus may point to the trouble even if no redness on simple inspection be apparent. Pouting and redness may point to abscess, fistula, hernia, polypus, or fungus umbilici. Therefore, omphalitis must not be confounded with umbilical hernial protrusions, nor with biliary fistulæ opening at the umbilicus.[1] In Slocum's case there were pouting and soreness in the umbilical region followed by an opening at the umbilicus and the discharge of bilious fluid, a little pus, and eleven calculi ranging from 5/8 to 1 1/8 inches in circumference, of a brownish-yellow color and mostly with six facets.

Fecal[2] and urachal fistulæ[3] must be excluded. Furuncles can be readily diagnosed. Herpes, of which I have seen a form which seemed worthy of the specific appellation of herpes umbilicaris, must not be taken for omphalic ulceration. Epithelioma[4] of the umbilicus I have never seen, but presume it could be readily excluded.

In the case of fungus umbilici of Gatchkoosky[4] there was a "bright red, solid, globular, umbilical tumor" in a child of two months (case recovered under use of powdered resorcin). The fleshy polypi[1] must be taken into consideration. According to Morris,[1] fleshy umbilical polypi are more or less pedunculated, red, moist, and sometimes associated with fistulæ which admit the probe to a long distance. In Dr. C. W. Stickney's case of abscess,[2] which was due to "either abscess of the abdominal wall external to the peritoneum or localized suppurative peritonitis circumscribed by adhesions," the umbilicus *protruded* as a rounded red tumor which soon fluctuated and ruptured, discharging a small quantity of healthy pus.

It may be well here to allude to the diagnostic significance of periomphalic color and hardness. I have already called attention to the black ring around the umbilicus in Case I. Dr. S. B. Bond believed that a red ring encircling the umbilicus in a newly born child pointed to retarded birth.[3] In one of his cases the ring was *bright red and less than two lines wide.*

Prophylaxis.—In the prevention of umbilical inflammation according to Drs. Credé and Weber[4] the desideratum is a dressing which shall allow the process of desiccation and separation to go on undisturbed. They wrap the stump of the cord in absorbent cotton, and leave it loose under the "belly band." The following methods may also be tried: dressings of salicylic starch powder and various antiseptic occlusive applications. In a word, measures which prevent traction, friction, and sepsis.

In older patients proper washing of the umbilicus should be enjoined. The hygiene of the umbilicus is not often referred to, and its toilet imperfectly performed, thereby allowing offensive secretions, epithelial scales (scurf), and fragments of organic matter—*i. e.*, dirt, fibres of cotton and wool—to accumulate within the umbilical recesses, thus forming a veritable culture cup in which I should not be surprised to learn that some bacteriologist had found special bacteria, as Rosenbach's[5] bacillus saprogenes No. 1 may (as Hauser[6] so graphically says) be obtained "aus stinkendem Fusschweiss."

Furthermore, the following rule may be laid down: do not blister the umbilicus if you do not want a troublesome case of omphalitis.

Treatment.—The treatment of omphalitis should be antiseptic. The navel must be thoroughly cleansed by washing, or injections of carbolized or sublimated solutions. The navel is then to be dried

1 Med. Record, vol. viii. p. 255.
2 Med. and Surg. Reporter, vol. li. p. 276.
3 International Encyc. Surg., vol. v. p. 864.
4 Med. and Surg. Reporter, vol. l. p. 58.

1 International Encyc. Surg., vol. v. p. 864.
2 Med. and Surg. Reporter, vol. xlviii. p. 378.
3 Med. Record, vol. iv. p. 132.
4 Amer. Med. Digest, 1885, p. 127.
5 Rosenbach: Mikroörganismen, p. 70.
6 Hauser: Fäulnissbacterien, p. 50.

and dusted with iodoform (resorcin, etc.), and then packed with simple, or borated, or iodoformed absorbent cotton. If necessary, a few strips of plaster will retain these dressings. In cases attended with indolent ulceration (endomphalic) I have recommended injections of zinc sulphate.

In omphalitis resulting from abscess, fistula, fungus umbilici, hernia, polypus, or sarcoma, treatment would be merged into that for the more serious trouble.

MEDICAL PROGRESS.

The Treatment of Habitual Constipation by Enemata of Glycerine.—Dr. Althaus has found the following plan of treatment of value:

At a time when not only the tedious proceeding of massage, but actually manipulation of the abdomen by cannon balls is recommended for chronic constipation, a far simpler and more effectual way of inducing peristaltic action of the bowels, which has recently been discovered, should be brought to the knowledge of the profession generally. This consists of the injection into the rectum, by means of an ordinary glass syringe, of about half a teaspoonful or a teaspoonful of glycerine.

An evacuation generally takes place, either immediately or within a few minutes after the injection. The explanation of the effect given by Anacker, and which is no doubt the true one, is this: Glycerine when brought into contact with the mucous membrane of the rectum, withdraws water from it, thus causing hyperæmia and irritation of the sentient nerves of the rectum, which in its turn leads reflexly to powerful peristaltic contractions, ending in defecation. The larger the accumulation of feces, the greater is the effect. There is no discomfort or pain, but the action takes place *cito, tute et jucunde*. Sometimes, however, a little throbbing is felt in the rectum for a few minutes afterward. I feel sure that this plan, on account of its simplicity and readiness, will be found to constitute a veritable improvement in the therapeutics of constipation.—*British Medical Journal*, Dec. 24, 1887.

Amylenhydrate in the Treatment of the Insane.—Lehmann reports 149 observations on the action of amylenhydrate, on 26 insane women, in an asylum. The doses varied from 15 to 75 grains; on one occasion 90 grains were given. It was given shaken up with water. In 83.2 per cent. of administrations good effects resulted. In the cases of 11 maniacal women the remedy was effectual, in large doses. In melancholia the results were less marked. In two cases of chronic mania, with hallucinations, good results were obtained. In the paralysis of the insane it was also useful. The effect of the remedy was produced in from five to fifteen minutes after administration, and was purely hypnotic. The sleep resulting lasted from six to eight hours. The only unpleasant after-effects noticed were feeble nausea and gastric uneasiness on the day after taking the drug. Amylenhydrate is more efficient than paraldehyde, and although its odor is not agreeable, it does not cause offensive eructations, as does paraldehyde.—*Therapeutische Monatshefte*, December, 1887.

Antipyrin in Epilepsy.—Lemoine, in an article in the *Gazette Médicale de Paris* of December 24, 1887, concludes that antipyrin is inert in the majority of epileptics; those cases which may be benefited by it are—

(1) Those in which epileptic paroxysms are induced by menstruation.

(2) Those patients whose paroxysms are induced by the irritation of intestinal parasites.

(3) Epileptics whose attacks are attended by migraine.

Antipyrin, in quantities of thirty grains per diem, is superior to bromide of potassium in the cases specified.

Antifebrin in Phthisis.—In the *Wiadomosci Lekarskie*, Nos. 5 and 7, 1887, Dr. Stachiewicz published an able paper on the treatment of phthisis by antifebrin. The paper is based on twelve cases admitted to Dr. Brehmer's hospital in Goebersdorf for pulmonary diseases. They were arranged in three categories, one of which included emaciated and weak patients, with an old standing and still progressing disintegration of the pulmonary tissues; another, those with recent progressive disintegration, the general state being still fairly good; and a third, those with old cavities and slowly progressing infiltration of adjacent parts of the lung, but still in fair general health. Analyzing the cases, Dr. Stachiewicz arrives at the following conclusions: In patients belonging to the first group, antifebrin should be administered in small doses, such as two grains to one grain Given in doses of four grains it produces in weak persons profuse perspiration and often rigors. The lowering of the febrile temperature takes place in an hour after the administration, reaches its maximum in three or four hours, and lasts from six to eight hours. In patients of the second group, the dose should amount to from four to seven and one-half grains. The antipyretic action develops itself in one or two hours after administration, lasts from three to five hours, and is not associated with rigors or vomiting; sweats and cyanosis are seldom met with; the amount of urine remains unchanged; the pulse becomes slower and fuller. The same may be said as regards patients of the third group. In them antifebrin should be given in doses of four to seven and one-half grains as soon as the temperature rises to 99.8° F.; if a reëlevation of the temperature occurs later on, another dose should be administered. On the whole, the author places antifebrin far above all other antipyretic remedies. —*British Medical Journal*, December 24, 1887.

Omeire.—The German colonist in Southwestern Africa have observed the use of a drink among the natives, composed of fermented milk. In corresponds to kouniss and kefir, and is produced by the action of a ferment similar to that of these beverages.

Marloth reports that omeire contains alcohol in small quantities, and that after six or ten hours' fermentation the casein separates from the milk completely.—*Therapeutische Monatshefte*, December, 1887.

The Treatment of Constipation in Children.—From a review of various methods of treatment, by Huchard, in the *Revue Gén. de Clin. et Thèr.* of December 29, 1887, we take the following prescriptions:

For infants Widerhofer uses

Mannit.	grs. 6.
Aquæ bullient.	ʒ 10.

Mix, and allow to cool. A teaspoonful for a newborn child.

Castor oil may be made less objectionable to children by combining

Castor oil,
Malaga wine . . . āā ♏ 75 to ʒ 2½.

Widerhofer combines rhubarb and magnesia as follows:

Rad. rhei pulv.,
Magnes. calcin.,
Fœniculi. Equal parts.

As much as will lie upon the point of a medium-sized knife blade may be given to an infant in the morning, and repeated, if necessary.

In the more obstinate constipation of older children, Simon has found the following liquid efficacious:

Tinct. cascarillæ,
Tinct. rhubarb.
Tinct. cinnamon.
Tinct. colombo,
Tinct. gentian. . . . . āā ʒ 2½.
Tinct. nucis vom. . . . . ♏ 75.

For children older than three years, 10 drops of this mixture may be given in cold water before meals.

Widerhofer prescribes pepsin as follows:

Pepsin . . . . . grs. 9.
Sacchar. lac. . . . . grs. 60.

In four doses: two doses daily, before nursing.

After nursing,

Acid. hydrochlor. . . . . gtt. 5.
Aquæ destill. . . . . ʒ 10.

Two small teaspoonsful may be given twice daily, five minutes after nursing.

Henoch prescribes,

Pepsin . . . . . grs. 15.
Acid. hydrochlor. . . . . ♏ 7½.
Aquæ destill. . . . . ʒ 30.
Sacchar. . . . . ʒ 2½.

A teaspoonful four times daily.

Bouchut has used the following for infants:

Podophyllin. . . . . gr. ¾.
Syrup. althaeæ . . . . . ʒ 22.
Cognac . . . . . ʒ 3.

Dose, 1 or 2 teaspoonsful.

Cascara sagrada and saccharin may be combined as follows:

Ext. cascar. sagrad. (alcohol.) grs. 7½.
Glycerin. pur. . . . ʒ 12½.
Saccharin. . . . . grs. 3 to grs. 7½.

Dose, 1 or 2 teaspoonsful; if the bitter taste of the cascara is not disguised by the saccharin, tincture of cinnamon will be found useful.

West considered licorice as especially adapted to children, and prescribed it as follows:

Glycyrrhizæ . . . . . ʒ 15.
Sennæ . . . . . ʒ 15.
Sulphur. lot. . . . . ʒ 7½.
Fœniculi . . . . . ʒ 7½
Sacchar. . . . . ʒ 45.

Dose, proportionate to age and peculiarities of the case.

Tetanus Cured by Morphia and Cocaine.—LOPEZ is quoted by the *Journal of Nervous and Mental Diseases* for December, 1887, as reporting in an Italian journal the following case:

M. G., fifty years old, having worked in the cold and wet, complained of rheumatic pains in the back and extremities. Three days after he had an attack of opisthotonus and painful spasms, and all the symptoms of idiopathic tetanus. Morphine and chloral hydrate were prescribed. For three days the patient, under the influence of these medicines, had little pain, but there were increased muscular rigidity and spasms. At last he was unable to swallow, and death was believed imminent. Injections of morphine were without effect. Then the writer injected three syringefuls of a mixture of morphine and cocaine, five per cent. of each. The effect was immediate. After two hours he could move the extremities, open his mouth, and turn himself in his bed. The next day he continued to improve. There remained a slight trismus and a little rigidity of the neck. A quarter of a syringeful of the same solution was injected in each side of the neck. The day after, all the symptoms had disappeared, and in a few days the patient gained strength and was able to return to work.

Cornutin.—LANGAARD, in an article reviewing the active principles of ergot, describes cornutin as having been used in 46 cases in the Midwives Clinic at Stuttgart by Erhard. The results were, a distinct effect in 34.7 per cent. of the cases treated; a probable effect in 28.2 per cent.; a doubtful effect in 17.3 per cent.; and no result in 19.5 per cent. Six of the children were stillborn, and Langaard advises against the use of cornutin without special caution in this regard. The dose employed was one-fifteenth of a grain, in pill form.—*Therapeutische Monatshefte*, December, 1877.

The Preparation of Koumissed Peptones.—In addition to the description of these food stuffs, published in the THE MEDICAL NEWS of December 31, 1887, we quote, from the *British Medical Journal* of December 24, 1887, DR. ANDERSON'S method of preparation, as communicated by him, as follows:

To prepare milk previously to being converted into koumiss: Obtain sweet "old or skimmed" milk; steam it until a fairly tough pellicle forms upon the surface, when set aside for twelve hours; then take off the pellicle and any and every particle floating on the surface; add 25 per cent. of pure soft water, and to each quart of the mixture add 20 grains of sodium bicarbonate, and one ounce and a half of either pure clover honey or fine white sugar. Mix in the ferment, namely, either about a quarter of a pint of fairly new koumiss, or, in the absence of this, the honey ferment described. Bottle at once in champagne bottles and securely cork and wire them. Submit them to a uniform temperature of about 80° F. for from twelve to twenty-four hours. A drop or two of koumiss, exuding through the cork, shows that the process is complete. The bottles may be shaken and put away in a cool place. The koumiss has now a slightly acid taste, and is fit for immediate use, but it will keep good for an indefinite period, except that it daily becomes more acid.

To prepare milk previously to being pancreatized or peptonized: Obtain sweet "old or skimmed" milk, and

steam and treat it in all respects as for koumiss. Add no water. Having removed the pellicle and floating particles, add a sufficiency of pancreatine, and to each quart of the steamed milk twenty grains of sodium bicarbonate. Keep the milk at a temperature of about 130° or 140° F. for the space of two hours, stirring about once each fifteen minutes. At the expiration of two hours, raise the temperature quickly to the boiling point, and then set aside to cool. If it is intended to peptonize by adding pepsin and not pancreatine, the sodium bicarbonate must be omitted until after the completion of the process (two hours), and after boiling. If it be intended that both pepsin and pancreatine be employed, then after the completion of the action of pepsin, and after boiling, the milk must be neutralized by addition of a sufficiency of sodium bicarbonate before adding the pancreatine. Milk "alone" I never peptonize, but I always pancreatize it. Having completed one or both of these processes, and allowed the result to cool, the same process is gone through as with ordinary koumiss, with the exception that no water is added.

One correspondent questions whether 25 per cent. of the water of milk is driven off during the process of peptonization. Considering that the milk is maintained for two hours at a not less temperature than 130° F., and then is boiled, I do not think the matter difficult to understand.

The honey ferment will keep active, if occasionally fed with fresh honey, or a little sugar.

The Hypnotic Action of Antipyrin in the Insane.—MAIRET and COMBEMALE have obtained the followiug results in the use of antipyrin among the insane.

More than fifty cases were treated by this drug, and its use was continued for several consecutive weeks. In a dose of 60 grains, given in aromatic water at bedtime, the remedy proved useful. As much as 120 grains were given at one time with good results. The effect varied with the type of insanity under treatment. In simple mania the effect varied with the acuteness and intensity of the paroxysm; in the more chronic cases a good result was obtained. In senile dementia antipyrin was useless.

In alcoholic mania, with or without organic lesions, a success, generally positive, was obtained; sleep for several hours, sometimes for an entire night, was secured. In general paralysis from alcoholism antipyrin failed. In epileptiform mania antipyrin produced sleep of considerable duration. It produced an effect, however, generally less well marked than that produced by digitalis and chloral, as given by these writers. The dose of 60 grains never produced toxic effects, although continued for a month; nausea and vomiting occurred twice, but the drug was well borne when repeated. The larger doses were given but a few times, but without ill effects. —*Gazette Hebdomadaire*, December 23, 1887.

The Administration of Hypnone.—LAILLER has given hypnone conveniently, in doses ranging from 20 to 80 drops, combined with alcohol, aquæ laurocerasi, and syrup of orange.—*L'Union Médicale*, December 11, 1887.

A New Deodorant for Iodoform.—HELBING is quoted by the *American Pharmacist* of December, 1887, as having had his attention called to the value of the essential oil of evoida fraxinifolia as a deodorant. He had an opportunity of examining the fruit of this plant, and found that it yields an oil having a most agreeable and powerful odor, which is even able to overcome the smell of iodoform, either in crystalline shape or in solution. For practical purposes it is only necessary to add a little (two drops to the ounce) of the essential oil to the disinfectant in order to obtain a complete dèodoration of the latter, the chief objection which has been raised against the use of this valuable remedy thus being obviated.

Local Anæsthesia in the Extraction of Teeth.—DIAN is quoted by the *Therapeutische Monatshefte* for December, 1887, as having injected a mixture of seven and a half grains of cocaine in ten minims of a two per cent. carbolic acid solution, half upon each side of the tooth to be extracted, injected beneath the gum. In 86 cases anæsthesia was produced in five minutes' time. Some have claimed that carbolic acid alone will produce the same result.

An Arsenical Cocaine Paste for Dental Use.—KIRK has found the following useful, and as little painful as any application, in devitalizing tooth pulp.

Acid. arsen. pulv.	gr. 15.
Cocaine hydrochlor.	gr. 15.
Menthol (crystall.)	gr. 4.
Glycerine	q. s.

—*Dental Cosmos.*

Contagious Pneumonia in Swine.—CORNIL and CHANTEMESSE have determined, by the examination of animals dying from this disease, that the malady is one generally infectious, whose pulmonary symptoms are caused by its mode of introduction into the economy, which is by inspiration of contagious matter. The post-mortem appearances are those of fibrinous pneumonia, and the experimenters demonstrated a bacillus which causes the disease.—*Revue Scientifique*, December 21, 1887.

Poisoning with Hyoscin; Recovery.—DR. GITHENS reports, in the *Therapeutic Gazette* of December 15, 1887, the case of an insane patient who, while she was alone, drank all that remained in a bottle, not less than four-fifths of a grain of hyoscin hydrobromate (granting that the prescription had been properly filled). Profound sleep was the only effect of this enormous dose. A neighboring physician was called in; he used towel slappings and other forms of personal violence, and administered croton oil. He did not see the patient until the next day, when all effects of the hyoscin had passed away, so he could tell nothing of the state of the pupils or skin. The latter was bruised from the violence, and her mouth, tongue, pharynx, and stomach, were in a terrible state of inflammation from the local action of the croton oil. He did not know why it was administered.

Osmic Acid, Hypodermatically, in Intercostal Neuralgia.—SEELIGMÜLLER has treated intercostal neuralgia by hypodermatic injections of osmic acid, in solutions of from one to ten per cent. The injections were made deeply into the muscles along the spine, and produced sharp pain at first, followed by relief.

In treating neuralgias of nerves containing both sensory and motor fibres, as the sciatic, the writer would not advise the use of a solution stronger than one per cent.,

fearing paralysis from stronger solutions. His usual dose in intercostal neuralgias was half or the whole contents of an ordinary hypodermatic syringe.—*Therapeutische Monatshefte*, December, 1887.

Hypnotics in Cardiac Disease.—SANSOM, in an article on aortic disease in the *Lancet* of December 31, 1887, writes that when the heart is very irritable and palpitation is frequent, a wakeful night may mean much mischief. As a hypnotic, the action of which is attended with no ill consequence whatever, he has employed urethan in a single dose of twenty grains at bedtime; but this loses its good effect by frequent repetition. Paraldehyde, in thirty-minim doses in almond mixture, may be given as an alternative, the dose being repeated in half an hour if sleep fails to come. These failing, as they do when pain and distress are severe, then the hypodermatic injection of morphia and atropine is the best course, and a few nights of such treatment may suffice to tide over the peril of insomnia. That insomnia is a peril in an aortic case he is well assured, though he is equally assured that the physician must take pains that the morphia habit be not inculcated.

Iodol.—TROUSSEAU has found the following formulæ useful:

For an ointment,

Vaselin.	℥ 2½.
Iodol.	grs. 30 to 60.

In solution,

Iodol	3 parts.
Alcohol	35 parts.
Glycerine	62 parts.

In disease of the lachrymal duct, the following was found a useful injection:

Liquid vaseline	℥ 7½.
Iodol	grs. 45.

—*Revue Gén. de Clin. et Thér.*, December 29, 1887.

Cataract and Albuminuria.—In view of the opinion that cataract is apt to appear in patients suffering from chronic nephritis, DR. F. O. EVETZXY (*Vratch*, No. 7, 1887, p. 170) has examined the urine and the eyes in 200 cases of cataract at the Moscow Ophthalmic Hospital, in 87 cases of nephritis, and 561 aged persons (inmates of several almshouses). The following are his results: 1. Albuminuria has no influence whatever on the development of cataract. 2. No cataract was found in young patients suffering from nephritis; the affection was met with in old patients, but not more frequently than in elderly people with sound kidneys. 3. Both sexes are attacked by cataract with equal frequency. 4. The development of cataract is favored by bad nutrition. 5. Age has an enormous and essential influence on the formation of cataract. The number of cataract cases amongst the old is very large, the percentage increasing with the age.—*British Medical Journal*, Dec. 24, 1887.

Meat Broths for Children.—In the *Archives of Pediatrics* for January, 1888, JACOBI writes as follows on this subject:

Beef-broth is about as nutritious as whey, and no more. But on account of the extractive substances of beef, kreatin, and kreatinin, it is more stimulating. The temperature of the body is not raised by it. In gastric irritation, gastritis, and acute dysentery it ought not to be given. Veal-broth is liable to increase diarrhœa, mutton-broth constipation, and is therefore preferable in cases of diarrhœa. A broth of beef, which contains from 1.5 to 2 per cent. of albumen, is made by mixing one part of beef and six of water with a little chloride of sodium and allowing it to stand from ten to twelve hours. Then it is slowly boiled and the whole mass pressed out. Still better is a modification of Liebig's beef-tea, which is obtained by adding one half-pint of water, with six or seven drops of dilute muriatic acid, to a quarter or one-half of a pound of finely cut lean beef, stirring it occasionally during two hours, and boiling a few minutes. Beef-juice obtained by pressing out beef after slightly boiling it, contains from 6 to 7 per cent. of albumen. It is slightly acid and spoils quickly.

Excision of the Tongue for Epithelioma.—In the *Lancet* of December 31, 1887, BARWELL describes his method and its application in a recent case as follows:

The method is this. Strictly in and along the middle line an opening is made about one-third of an inch long immediately in front of the hyoid bone, through the raphé of the mylo-hyoid. The genio-hyoid and genio-hyoglossus muscles are separated with the handle of the scalpel until the deep surface of the mucous membrane forming the floor of the mouth is reached. By means of Liston's needles carried under this membrane to, or even beyond, the last molar teeth, threads are passed on each side into the buccal cavity, which in their turn draw flexible wire-twist, first into, then out of, the mouth, in such wise as to surround the base of the tongue as far back as one will. An écraseur working with this wire severs that part of the organ. Then the loop of another écraseur is passed between the teeth, pressed well down on the first incision, and divides the structures beneath the tongue.

In this way then, I operated on August 6th, on George G., aged forty-seven, who had a large epithelioma on the left side of the tongue, behind its middle; the induration, however, extended very far back and across to the other side of the organ. No enlarged glands could be felt. The ulcer was extremely sensitive: eating and even swallowing caused pain and trouble to him, while the very foul condition of the mouth took away all desire for food. During the operation but very few drops of blood were lost. Very soon after recovery from the anæsthetic he wrote on the slate that he was pretty comfortable. Aug. 8th: There had been a copious flow of saliva and other secretions from the supra-hyoid wound. The patient daily took a large quantity of milk and beef-tea, with, he says, more ease than he had done for a long time. The wound was frequently syringed and the mouth rinsed with a 1 in 60 solution of carbolic acid, and the breath was hardly at all tainted. 24th: On the 16th the man could comfortably eat finely minced meat, and had gained flesh since the last report. 30th: He left the hospital, the tongue wound being firmly cicatrized on the 27th. He was able to eat very well, and for the last ten days has been able to enunciate with considerable distinctness.

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SPLENECTOMY.

IN the *Archiv für klinische Chirurgie*, Bd. xxxvi., Heft. 2, ADELMANN, of Berlin, tabulates 53 cases of excision of the spleen for various affections. Omitting the cases of Ferrerius and Dorsey, which were not splenectomies, and adding 4 operations for floating spleen practised by Polk, Myers, Younker, and McCann, and 1 for leukæmia in the hands of Strong, we have 56 cases, of which 38, or 67.87 per cent., proved fatal, thereby showing a higher rate of mortality than laparotomy for any other cause.

The spleen has been removed for leukæmia 20 times, the only recovery having been recorded by Franzolini, in which the disease was in its incipiency. Of the 19 deaths, 14 were due to hemorrhage, 3 to shock, and 1 each to septicæmia and exhaustion. In 5 of the deaths from loss of blood the fatal issue ensued either during or soon after the operation; in 4 within twelve hours; in 3 within twenty-four hours; in 1 at the end of twenty-four hours; and in 1 in thirty-six hours. In the majority of the cases the bleeding occurred in separating adhesions and from rents of the organ. In one example it arose from slipping of a ligature.

Splenectomy for so-called simple hypertrophy, or chronic enlargement, shows 13 deaths in 14 cases, 1 from cirrhosis of the liver, 1 from septicæmia, 1 from peritonitis, 2 from shock, and 8 from hemorrhage, the rate of deaths from the last cause being 61.53 per cent., as against 73.68 per cent. for leukæmic spleen. One of these patients died on the table, and the remainder succumbed within twelve hours. In not less than one-half the vessel had been overlooked; in one the ligature had become detached; while in only one-fourth did the bleeding proceed from the surface of adhesions.

The three cases of excision for malarial hypertrophy were all fatal: 1 from septic peritonitis, 1 from shock, and 1 from parenchymatous nephritis. In two of these cases the loss of blood was profuse.

Wandering or floating spleens have been removed 13 times, with only 2 deaths, 1 from twisting of the stomach, and 1 from collapse. The operation has, moreover, been resorted to in 5 cases of cysts, of which 1 proved fatal, and in 1 case of sarcoma, which was successful.

It will thus be seen that splenectomy is indicated for floating spleen and cysts, and that it should positively be refrained from in all cases of hypertrophy, no matter from what cause that condition arise. The mortality for leukæmic enlargement is 95 per cent., for so-called simple hypertrophy 92.85 per cent., and for malarial hypertrophy 100 per cent. Hemorrhage was the cause of the fatal issue in 68.75 per cent. of the first two conditions; and as that complication was nearly as frequent in simple as in leukæmic enlargement, it is possible that leukæmia was present in a certain number of examples of the former condition. Even if absent, the so-called simple hypertrophy must so impair the hæmatogenetic functions of the spleen as to deprive the blood of its plasticity, and bring about a condition of hydræmia. Be this as it may, we take it that a simply enlarged spleen ought never to be excised. Should, however, excision be thought of, it must not be undertaken without a careful preliminary examination of the blood, and, if resorted to, great care must be exercised in hunting for and securing divided vessels, a point which had been neglected in one-half of the fatal cases from hemorrhage.

It may be added that, during the excision of a retroperitoneal sarcoma, Trendelenburg wounded and removed a healthy spleen, and that the patient died of hydræmia in three months.

THE ARMY HOSPITAL CORPS.

AMONG the older members of the profession in this country are many who once had a personal interest in army medical matters. A quarter of a century ago, our journals were filled with letters from valued correspondents at the front, articles on

hospital organization, camp sanitation, and camp diseases, and interesting cases from the experience of the great general hospitals. In turning over their pages, one may see how readily the profession buckled on the harness of war, and how interested were those who stayed at home in the fortunes and experiences of those who went away. At the present day, it is difficult to realize this old-time interest in the army, as we see the most important changes taking place in its hospital organization with scarcely a word of comment in the medical press. Yet many of those who served in the stirring times of the war would be interested in knowing that recently, and only recently, their own experiences have matured, and borne legislative fruit which will benefit the sick and wounded soldier in the future. Those who were in the field with their regiments will remember the fact that men detailed at their request for hospital duty were not those best qualified for it, but those whom commanding officers could spare with least detriment to the fighting strength of their commands; and the experience of those who served at general hospitals would, if recorded, be of a similar tenor, as a requisition for so many hospital attendants was usually filled by a detail of men who would have been sent to hospital as sick had they not been called for as nurses. The war demonstrated the necessity for a special body of trained hospital men; but year after year has passed, and not until even the police of some large cities have been educated and drilled in the methods of giving first aid in accidents has the Army of the United States been provided with a set of men qualified to perform such duties.

The Act of Congress, approved March 1, 1887, authorizes the enlistment of a special corps of men to be attached to the medical department, and to perform its duties under the orders and supervision of the officers of that department.

For post or peace service there is provided one hospital steward for every post—two, if the garrison contains six companies, and one additional for every additional six companies. There is also provided for every post of two companies, or of a single company of cavalry, an acting hospital steward, with privates at the rate of three for each post of one company, four for posts of two companies, with one man additional for each additional two companies. Each post-surgeon is provided with an ambulance and harness, which must be at all times in good order and ready for service, and with hand-litters, cacolets, travois, and mule-litters as may be required. Moreover, four men of each company are to be designated for instruction as litter-bearers. These bearers will be specially trained to enable them to render temporary aid to the sick and wounded of their organization; but their duties as bearers will not relieve them from their duties as soldiers. It is the intention that the corps of company-bearers shall form the training school for members of the hospital corps, and that the privates of the one will be recruited from the ranks of the other.

In the field in time of war the privates of the hospital corps will constitute two per cent. of the aggregate strength of the command, with an acting hospital steward to every ten privates, and a hospital steward to every thirty. They will perform the duties of litter-bearers, services with the ambulances, at the primary dressing and ambulance stations, and at the field hospitals of the command. They will be organized into a company for each brigade, with their hospital stewards and acting stewards as non-commissioned officers, under command of an officer of the ambulance service or a medical officer detailed for that purpose, and will habitually camp near the division hospital, or, if there be none, near the brigade or field hospital, to give such assistance as may be needed. Ambulances will be allowed and attached on a basis of one to a regiment of infantry of less than 200 men; two to a regiment of from 200 to 500 men; three to a regiment of more than 500; one or two to a regiment of cavalry, according as the latter has more or less than 500 men, and one to a battery of artillery. These, commanded by suitable detailed officers, will be under the control and supervision of the medical director. General hospitals are to have six privates to every thirty beds, with as many stewards and acting stewards as may be required. Hospital boats and cars will be similarly provided.

Outside of the special enlistment of the men for service under the orders of the medical department, the greatest gain to the department lies in the qualifications required for enlistment and promotion. No man may become a hospital steward without having demonstrated his fitness for the position by a year's service as an acting steward, and the latter position is only open to those men who have served a year as privates in the corps. This prevents unmerited promotion; but it has the disadvantage of excluding from the corps thoroughly qualified men who might otherwise be inclined to accept the posi-

tion of steward. A graduate of pharmacy or medicine may not, under the terms of the law, be appointed to a stewardship without passing through the preliminary terms of discipline and probation; few qualified pharmacists would be willing to do this. The uncommissioned officers of the corps must therefore be educated in its own ranks, and by its own officers. Every medical officer has to supervise the instruction of his men and the higher education of his stewards; the latter guide and direct the acting stewards, and these perform similar offices for those who serve under them. Promotion is awarded as the result of competitive examination: First, by a board of medical officers convened at the post at which the candidates are serving, and second, by written papers issued from the Surgeon-General's Office at Washington. The character of these papers call for a high grade of intelligence and knowledge on the part of the candidates. In addition to their knowledge of arithmetic, their familiarity with hospital reports and returns, the preparation and serving of food, and the use of the meteorological instruments, and hospital and field appliances furnished by the medical department, candidates for a stewardship are examined on pharmacy and materia medica as the professional basis of their fitness for dispensing, on minor surgery and the recognized modes of action in the face of medical and surgical emergencies as showing their fitness for field service, and on the elements of hygiene, particularly as related to the sanitation of camps and hospitals. The hospital steward has to be more than a mere dispenser of prescribed drugs; he must be prepared on occasions to take the place temporarily of the medical officer, not only as surgeon and physician, but as health or sanitary officer. The new position is on a higher plane than the old, and the law which institutes it gives an increased, although not a proportionate, remuneration.

The results of these examinations, so far, are said to be very gratifying, as showing the men at present holding these positions to be generally capable of the duties newly assigned them. Surgeon-General Moore has taken much interest in the development of the corps, in the assignment of individuals in accordance with their merits, and in defining and limiting the extent of the professional subjects which the men are required to know. Post-surgeons, also, have done much to prepare those serving under them for their places under the new law. We may anticipate, therefore, that in a short time our army will have what it has never had heretofore—a special corps of men fully trained for all the accidents of peace, and the emergencies of war.

The experiment in progress in the development of this corps will be watched by medical officers connected with our militia organizations. Some prominent State officers have already made inquiries concerning it. Our army is small, but its constant service on a peace footing in the east, and a war footing in our yet unsettled west, will enable it to crystallize that which is of practical value around the nucleus of the new corps, and give to our State militia a system, ready formed, for adoption.

STOMACH-COUGH.

THIS often troublesome and annoying condition has been thoroughly studied, both experimentally and clinically, by such observers as Nothnagel and Ebstein, and several men almost equally well known. That the cough is purely reflex is generally believed by practitioners, although the exact method of its production is still in doubt. Irritable conditions of the stomach, particularly of the peripheral sensory nerves in this organ, undoubtedly predispose to it, and, if the patient be hysterically inclined, the diagnosis is the more readily made.

In a case reported by BULL, in the *Deutsches Archiv f. klin. Med.*, of December 9, 1887, occurring in a servant girl of twenty-four years, symptoms manifested themselves showing disordered gastric function, but these were scarcely sufficient to excite suspicion. The cough had been present for a long period of time, and had persisted notwithstanding the use of cough medicines. There was no history to account for any disorder of the nervous system, and as no physical signs were present indicating respiratory disease of sufficient vigor to produce trouble, the patient was carefully dieted, and the alimentary canal treated as indications arose. The food allowed was chiefly milk and finely powdered meats given in small and frequently repeated quantities.

These cases are, of course, by no means uncommon, but we think that many of the coughs which are treated as respiratory in origin, and which do not yield to ordinary treatment, may be due to gastric trouble.

Certain it is that every practitioner sees cases constantly in which the physical signs are by no means of sufficient importance to produce severe cough, and it would seem probable that in these cases the

few bronchitic râles are rather the result of the cough than factors in its cause.

SMALL PARKS OR OPEN SPACES.

THAT is a short-sighted and mistaken policy which ignores the provision of small parks or open spaces for the adornment of the city and the recreation of its inhabitants. Such spaces interspersed throughout the populated districts, adorned with trees and shrubbery, and properly cared for, interrupt the monotony of solid blocks of compact buildings, beautify the city, and yield hygienic advantages of no small value. They afford places for healthful recreation for the children of the vicinity, who otherwise would be denied this privilege. They please the senses, and help to cultivate a fondness for the beautiful in nature.

By the exercise of intelligent foresight, plots of ground, judiciously selected, could be procured at moderate cost in advance of the extension of building operations, and reserved for the future uses of the public. On the other hand, by neglecting this precaution, the opportunity is lost, as the enormous expense of procuring suitable spaces for public pleasure-grounds in districts already populated is sure to defeat the undertaking. In extending the plans of our rapidly growing cities, past errors should be retrieved as far as possible by wisely designating numerous spaces to be reserved for the adornment of the city, and for the pleasure, recreation, and health of future generations.

WE are glad to learn that DR. W. W. KEEN'S case of brain tumor which was operated upon December 15, 1887, is doing well. Ten days after the extirpation he had a sharp rise of temperature to over 104°, with diarrhœa and marked bulging of the flap, paresis of the right leg, paralysis of the right arm and right lower face with aphasia. These severe pressure symptoms, coupled with the considerable blood clot formed in the wound in the few days after the operation, led to the fear of suppuration and the wound, which had nearly healed, was reopened to some extent, but no pus was found. A hernia cerebri has, of course, followed, but this is healing slowly under the antiseptic dressings, and seems to be doing no harm. The leg and face have entirely recovered, the aphasia has disappeared and the arm is regaining its function. As six weeks have passed since the operation, it is reasonable to conclude that the patient will make a happy recovery. His intelligence has not suffered at any time.

THE Medical Society of the State of New York will hold its eighty-second annual meeting at Albany, on the 7th, 8th, and 9th of February, under the presidency of Dr. Alfred L. Loomis. The programme is very full and attractive, and includes discussions on "Acute Bright's Disease," by Drs. Delafield, Jacobi, Roosa, Van Santvoord, Barker, Jewett, and Ely; on "Salpingitis," by Drs. Goodell, Mundé, Lee, Mann, Seymour, Castle, Polk, Wylie, and Vanderveer; on "Intestinal Obstruction," by Drs. Stimson, Wey, Vanderveer, Park, Weir, and Curtis; and on "Treatment of Tubercular Affections of Joints," by Drs. Phelps, Gibney, and Gerster. The President's Address will be delivered on the evening of the 8th.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, January 19, 1888.

THE PRESIDENT, A. JACOBI, M.D., IN THE CHAIR.

DR. H. CAILLÉ read a paper on

A METHOD OF PROPHYLAXIS IN DIPHTHERIA.

He said that in some households one or more members of the family, especially among the children, had an attack every spring or autumn, and it had occurred to him that in all probability in such cases the microbes of the disease remained permanently in the system, continuing in a dormant condition until some irritation or catarrhal inflammation of the faucial or nasal mucous membrane afforded an opportunity for the diphtheria to break out afresh. The disease was thus propagated by a process of auto-infection.

In order to make a practical test of the correctness of this hypothesis, he selected eight individuals of different ages, all of whom had had diphtheria at least twice, and some of them quite a number of times, prior to October 1, 1885. All belonged to families whom he had known for a long time, and who had continued to reside in the same house or apartments. The first thing that he did was to cause all carious teeth to be filled or extracted. He then directed the mouth to be thoroughly rinsed, and the throat to be gargled, and the nose to be cleansed, three times every day, with either a three per cent. solution of potassium permanganate, a weak solution of liquor sodæ chlorinatæ, or a saturated solution of boric acid; the different solutions being alternated with each other from time to time. In very young children the antiseptic solutions were dropped into the nostrils with a pipette. This practice was maintained throughout the year, except during the summer months, when none of the subjects had ever had diphtheria.

In addition to these eight cases, he ordered that from ten to fifteen drops of a saturated boric acid solution should be dropped into the nostrils of two infants, a year old, whenever any catarrhal symptoms manifested themselves.

The result of these precautions was, that up to the

present time, not one of the individuals referred to had had diphtheria since the system of prophylaxis had been commenced, although some of them during the time mentioned had been exposed to the disease by other members of the family having it.

While this result does not, of course, afford absolute proof of the prophylactic power of such a plan of procedure, it does go to show that if the nasal and oral cavities are kept clean by means of antiseptic solutions, diphtheria is less liable to occur than if no such precautions are resorted to.

It is a fact, that hitherto in diphtheria, far less attention has been paid to prevention than to the treatment of the disease after it has made its appearance. One reason why it is difficult to employ an intelligent prophylaxis, is because of our ignorance of the nature and significance of so-called diphtheria. Since we cannot in many instances distinguish between a contagious and a non-contagious sore throat, the problem presented is a very unsatisfactory one to handle. There is no specific treatment for diphtheria, and in the present state of our knowledge, prophylaxis is of more value to the public at large than treatment. Prophylactic measures can be divided into those relating to general sanitary conditions, and those confined within the family. It is an unfortunate fact that in a large city the great majority of the inhabitants cannot live in perfectly healthy habitations, and the great importance of individual prophylaxis is, therefore, obvious.

Dr. Caillé then passed in review a large number of works on practice and on diseases of children, showing that most authors scarcely allude at all to the subject of prophylaxis against diphtheria, while many others dismiss it with a few lines. Among those mentioned as devoting proper attention to it, were J. Lewis Smith and A. Jacobi. In speaking of the importance of keeping the upper air passages in good condition, with a view to preventing the occurrence of diphtheria, he quoted one writer as saying that a healthy throat has the same relation to diphtheria as a healthy stomach to cholera. In a city with densely populated districts, he went on to say, attention to the plumbing and ventilation of apartments, and sanitary conditions in general, must be supplemented by individual prophylaxis. The overheating of school-houses and dwellings is a constant source of danger, and isolation of those sick with diphtheria is not, as a rule, secured promptly enough. Enlarged tonsils increase the liability to diphtheria, and these should be removed with the knife, or, better, the galvanocautery. Carious teeth should be removed or filled, and he thought that provision should be made by which the poor could have dental cavities filled with cement or amalgam for nothing, or at a merely nominal price. He advised that parents should inspect their children's throats every morning before sending them to school, and that children should be taught how to gargle at an early age. Children with sore throats, however slight the trouble, should not be allowed to go to school, and kissing children on the lips should be forbidden. Parents should be urged to keep the upper air passages of their children in a healthy condition, especially if they are peculiarly susceptible to diphtheria. In young children, antiseptic solutions should be dropped into the nostrils twice a day, and oftener if there is any nasal catarrh present.

DR. GEORGE T. HARRISON said that he had had such painful experience in the treatment of diphtheria that he was especially glad to hear something in regard to the subject of its prophylaxis, and that he believed that the use of the precautionary measures advocated in the paper is a step in the right direction. He was also glad, he said, to hear Dr. Caillé emphasize the danger, as he had done in his paper, from so-called follicular amygdalitis, which the President of the Academy, Dr. Jacobi, had so strongly urged in his monograph on this subject in 1886. It is a matter in regard to which the profession, as well as the laity, needs to be on its guard.

DR. FRUITNIGHT said that it is a common experience to find that the first case of diphtheria in a family has advanced to a very dangerous degree before the medical attendant is called in, and, consequently, is very likely to prove fatal. It is also noticeable that afterward, in such families, the parents themselves often institute a system of prophylactic measures, making it a daily practice to examine the children's throats.

DR. S. BARUCH said that he should think that the daily washing out of the nose, by insufflation of antiseptic solutions or otherwise, is a very dangerous practice on account of the liability to excite serious ear-disease, especially if the fluid used is cold.

DR. T. R. POOLEY said that if the nasal douche were avoided, and warm fluids were used with an atomizer or by dropping into the nostrils he did not think there is much risk of causing disease of the middle ear. The safest and best method of washing out the nose is by means of the post-nasal syringe, which can be used with great facility after a little practice.

DR. CAILLÉ explained that he did not recommend the employment of cold liquids.

DR. SEIBERT said that he should like to add a word on the subject of prophylaxis, and that was in regard to the importance of keeping children's stomachs in good order, so that the mouth and tongue would be clean. In his experience a furred tongue is always a hotbed for the development of diphtheritic trouble, and he thought that the candy-shops in the vicinity of the public schools were responsible for a good deal of the diphtheria now so prevalent. These remarks, he said, were prompted to a considerable extent by his experience in the case of his own children.

THE PRESIDENT said that, if he understood the reader of the paper rightly, he believed that when a patient has once had diphtheria the germs of the disease are likely to remain secreted in the mucous membrane and lymphatic glands, and he quite agreed with Dr. Caillé in this opinion. Many of the cases of diphtheria of the greatest severity are those in which there is immense glandular swelling with œdema. Such cases are very likely to prove fatal, but if the patients recover the improvement dates from the time when these symptoms first begin to diminish. He felt sure, therefore, that diphtheritic germs are liable to remain in the lymphatics.

He desired to call attention also to another way in which the disease recurs. It had been remarked, that if the mouth is in a healthy condition, diphtheria is less likely to occur, while, if an epidemic of the disease appears in the locality where they reside, children who have a catarrh are especially liable to an attack. Diphtheria is like erysipelas in this respect. When there is an epidemic of the latter disease in a neighborhood the slightest scratch is likely to induce an attack of it,

while those who are free from any sore or abrasion of the surface escape. There is one point of great practical value in the prevention of diphtheria. It has often been noticed that cases in which it was thought that the patient was about over an attack of the disease had a relapse, and in some instances there were three or four attacks in quick succession. The reason of this was simply because the room, the bed, the curtains, the carpets, had become infected, and he had, therefore, made it a rule, whenever practicable, to change the room of the patient every two or three days, even if the room to which the removal was made was not as suitable for a sick-chamber as that first occupied. In some cases he had found it necessary to have the patient taken out of the house altogether.

Dr. L. Emmett Holt said he would like to ask, for information, whether there are any sufficient data to show that children with enlarged tonsils are more subject to diphtheria than others.

Dr. Caillé said that his own experience went to show that such children are more liable than others to be attacked, but he believed that, as a rule, in such cases the disease is of a comparatively mild form.

The President said that the reason why the tonsils are so frequently the primary seat of diphtheria is because they stand so much in the way of the air-current; so that deposits are likely to take place on them. Again, whenever the tonsils are enlarged there is a liability of mucus accumulating behind them. Enlarged tonsils are usually combined with a subacute or chronic nasal catarrh or pharyngitis, and the sooner, therefore, the tonsils are reduced and the pharyngitis removed, the better will be the prospect of the child's escaping diphtheria.

Dr. Joseph W. Winters said that when diphtheria appears in a family, in addition to enforcing strict isolation and attending to disinfection and the general sanitary condition of the premises, he inspects the throat of every member of the household daily, and, if there are children, orders them to take full doses of tincture of chloride of iron (say, twenty or more drops, three times a day), and tonic doses of quinine. At the same time he directs that they shall be kept in the open air as much as possible, shall sleep in rooms free from pipes connecting with sewers, and be given simple diet; while their digestive organs are maintained in good condition. To this end he usually orders small doses of mercury as a purgative, two or three times a week. When adopting these precautions he rarely saw two cases of diphtheria in the same family.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, January 11, 1888.

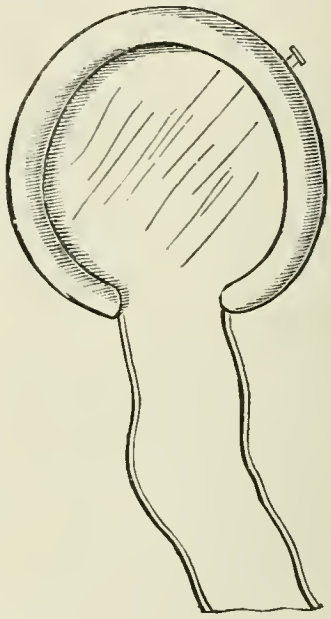
The President, J. Solis-Cohen, M.D., in the Chair.

Dr. Howard A. Kelly described his

RUBBER CUSHIONS FOR SURGICAL PURPOSES.

It is now almost a year, he said, since he put in the hands of Mr. Levick, manufacturer of rubber goods, several designs of cushions for surgical purposes. These cushions resemble those commonly used to sit on in having an inflatable rim, but differ in being left open on one side, being C-shaped or rectangular, with one side out. They have a bottom of rubber sheeting extended into an apron some inches in length for the purpose of drainage. He has had constructed three separate forms, a large C-shaped cushion measuring about twenty inches in diameter, the opening of the C being about eight inches across, and the apron twenty inches in length. The rim measures about two inches in diameter when inflated. This pad he constantly uses for abdominal sections, it is also of great service in obstetrical cases requiring operative manipulation. It permits the free use of water for douching purposes; drains all blood and water from the field, enabling the operator to return the patient at once to bed, without the necessity of removing clothing or changing linen.

A similar pad of the same pattern, measuring but ten inches in diameter, is in use on the examining table in his office, in all cases in which it is necessary to douch out the uterus or vagina.



The third pattern, which is in constant use for minor gynecological work, is the perineal cushion. It is rectangular in shape, opening on one side, having a rubber bottom and long apron similar to the preceding. When in use the patient's clothes are elevated, and the thighs held flexed on the abdomen by his "Beinhalter." The buttocks are drawn down over the edge of the inflated rim, and the apron which hangs down from the edge of the table carries off all blood and the water used throughout the operation.

There is no one device in all his gynecological work which has given him so much comfort as these simple cushions. He uses gallons of water with the utmost freedom, and without ever being obliged to think once where it is going. In perineal work, instead of using sponges, he uses constant irrigation, which prevents clotting of blood, soiling of instruments, and replaces at no expense, and with greater comfort and satisfaction, the sponges formerly used. The work thus accomplished is neater and cleaner, and the results are better.

He also presented a design for a rubber bed-pan. It is oblong in shape with an inflatable rim and a rubber bottom. It differs, however, from any previous device, in the fact that one end communicates with a large, funnel-shaped reservoir, terminating in a large nozzle

through which the fluids are finally discharged. The whole peculiarity of the device depends upon the funnel and its outlet; the funnel is very broad at the top, being the full width of the cushion, about seven inches in depth to the tube, terminating in the discharge pipe of the same length, which is perforated at its under side by a buttonhole for attachment, when in use, to the rim of the cushion. When the cushion is in use the rim is inflated, the discharge pipe is buttoned to the rim, and the patient is placed upon the cushion. Vaginal or rectal injections are now to be given. The fluid, as it is discharged from vagina or rectum, accumulates on the floor of the cushion, the amount this will hold depending entirely upon the depth of the inflated rim and the size of the cushion and reservoir. When it is desired to empty it the rim is caught in the hand at the upper end, and carried with the funnel hanging downward; all fluids at once gravitate into this, but do not escape, owing to the attachment of the discharge pipe to the rim. It is then carried to the closet and the discharge pipe unbuttoned, when the fluid rushes out; it is further cleaned by allowing water to run freely through it in the same manner.

The advantages gained by this device are very great. The softness of the rubber is a great advantage over the hard bedpan, the capacity of the cushion is much greater, and may be made to vary with the size of the reservoir alone. It can thus be used for purposes for which the bedpan is entirely inapplicable. The facilities for cleansing are perfect, eliminating the chief objection to which rubber cushions hitherto in use are open. The ease of transportation is also an available feature, as when collapsed it can be rolled up and packed away in small space. It can also be used for continuous irrigation, by leaving the discharge pipe, which can be made of any length, hanging over the side of the bed, discharging on a piece of rubber sheeting which conducts the fluid into a bucket.

DR. J. PRICE said that the only matter about which any question exists, is whether Dr. Kelly has any claim whatever as the inventor or originator of the irrigation pad. Such claim he has not only set up here but elsewhere, without, he thought, a shadow of authority in fact. Introducing the instrument here he has made it legitimate matter for discussion; not only as to the merits of the instrument, but the genuineness of its authorship. About five years ago he conceived the importance of an irrigation pad or cushion, and from a design of his own, Dr. J. Madison Taylor made a drawing. The instrument, as drawn, was ordered through Kolbe. Dr. Kelly saw it not only at the instrument store, but also at his office. He there examined it and discussed its merits.

DR. KELLY was sorry that anything so unpleasant should have come before the Society, and he could only say that he had no recollection that Dr. Price ever spoke to him on this subject.

CORRESPONDENCE.

ON PERITYPHLITIS AND THE EARLY DETECTION OF SUPPURATIVE PERITONITIS FROM PERFORATION OF THE APPENDIX VERMIFORMIS.

To the Editor of THE MEDICAL NEWS:

SIR: In the recent interesting discussion on peri-cæcal inflammation held at a meeting of the Philadelphia County Medical Society and published in your journal of January 7th, there are raised among the many valuable points connected with the disease in question, two by Dr. Pepper, that have specially attracted my attention and upon which I should much like further information.

He describes in the report two classes of these cases, one where the symptoms present themselves rather sharply, and under judicious management terminate generally in resolution, or they may go after a time to the formation of an abscess, and require for their surgical relief the well-known incision of Dr. Willard Parker. Both of these varieties Dr. Pepper considers to be due to inflammation of the walls of the cæcum and the peri-cæcal connective tissue, and that in them the appendix is affected to a comparatively slight degree.

Here more light is decidedly wanted. With such cases Dr. Pepper further remarks considerable impaction of feces exists, and in so far he is in accord with Krausold, who considers such inflammation rarely, if ever, to progress to suppuration unless a perforation exists. And this is the view that the surgical profession is gradually but strongly leaning to. It is supported in this tendency by ever-increasing evidence, showing more and more clearly the rarity of cæcal perforations and the frequency of appendicitis, simple or perforative, as the origin of abscesses occurring in the right iliac fossa. Even in the slowly progressing forms of suppuration such as are described by several of the gentlemen participating in the discussion alluded to above, it can be proved by a glance at the series of 100 cases of perityphlitic abscesses undergoing operation, that were diligently collected by Dr. Noyes in 1882,[1] that a majority of these distinctly gave proof of their cause being a perforated intestine. Out of the total of 100 cases, in 40 were recognized feces, fecal concretions or foreign bodies originally lodged in the intestine, and in 14 others gas in marked quantities was observed, while in 45 only, pus was seen in various states of foulness. In only one of the cases was nothing stated as to this point. Matterstock, likewise, in 146 cases of perityphlitic abscesses found fecal concretions 63 times.

Such testimony is corroborated largely by everyone who has frequently operated for perityphlitic abscesses, and, individually, I have felt it a strong argument in favor of an early surgical interference in these cases, and have elsewhere[2] so expressed myself, believing as I do, that a perforated appendix is generally the starting place of the abscess. The latter may take place outside the peritoneum by adhesion of the appendix, formed with the parietal peritoneum, then, or at a previous slight attack of appendicitis, or it can occur among the adjacent intestines, matted together by protective limiting adhesions, thus giving rise to a veritable intraperitoneal abscess scarcely to be distinguished from the former, or, finally, the fecal extravasation may spread widely and beget a fulminating general peritonitis.

It is in connection with this latter form of the disease that Dr. Pepper has called into notice a means of diagnosis which I consider of much importance. I refer to the use of an exploring needle to detect at a period much earlier than is now possible, the presence of a general sup-

[1] Transactions of Rhode Island Medical Society, 1886.

[2] A plea for earlier operations in perityphlitic abscesses, with a case of laparotomy for perforation of appendix vermiformis, in the Medical Record of June 11, 1887.

purative peritonitis. An experience of five cases of this form of peritonitis confirms the fact spoken of in your debate, and also reported elsewhere in numerous published cases, that not only does perforative peritonitis go on with great rapidity, but that the usual symptoms of a serous inflammation may frequently be wanting. Moreover, in all the cases seen in those on whom laparotomy has been performed, as well as in those in whom an autopsy has been made, there has been found, as a rule, very slight intestinal adhesions, or none at all, but an abundant secretion of puriform fluid which often collects between the loops of the moderately distended intestines, and is always to be found in large quantities in the pelvic cavity. In two of my cases the use of a large hypodermatic needle showed pus, which the subsequent laparotomy proved to come from the general peritoneal cavity, and I had been led to the same conclusion that Dr. Pepper has, that this test, used in localities other than in the right iliac region, where the possibility of an extra or intraperitoneal abscess might mislead one, would materially aid the surgeon in his decision for a prompt abdominal section, lateral or median, as might be determined on. Similar punctures have already been resorted to along the median line for this purpose. While such a puncture or punctures, for several could be safely made, will afford evidence, when obtained, of great value, yet a positive result is more likely to occur by tapping in this way the pelvic cavity.

Dr. Pepper suggests a curved needle introduced through the rectum. It is, I judge, a safer procedure to empty the bladder and then introduce a long, slender, straight aspirator needle above the pubis deep into the pelvis. This can be done without risk to the intestines in their comparatively undistended state, and a finger in the rectum will afford some guidance, as I have proven to myself in several trials of aspiration in this region for other causes. An early resort to this means of diagnosis has been a standing order with my house-surgeon for some time past, and I cannot refrain from thinking that good will come from it. For up to this time the result following laparotomy for peritonitis caused by a perforated appendix has been nearly uniformly fatal, there being, so far as is known to me, but one undisputed case of recovery out of fifteen cases, and death has occurred mainly from the profound and rapid septicæmia which is usually produced by a fecal extravasation. Yours most truly,

Robert F. Weir.

New York, January 17, 1888.

NEWS ITEMS.

The Illness of the Crown Prince.—We are pleased to be able to state that Sir Morell Mackenzie continues to receive highly satisfactory reports concerning the Crown Prince from the physicians in attendance. The condition of the illustrious patient is still better than it was last week. Further absorption of the small vegetation which recently appeared has taken place, and the slight general thickening of the left ventricular band has diminished. There is much less secretion from the larynx, showing that the catarrhal condition of the left side, which has from time to time caused a good deal of trouble, is also greatly improved. The Prince's voice, though rather hoarse, is fairly strong when he makes an effort, but in obedience to the advice of his physicians His Imperial Highness speaks as little as possible. Whilst, therefore, reiterating the warning we have already several times given as to the imprudence of placing too much reliance on the present favorable aspect of the case, it is, we think, fairly permissible to hope for the best.

We have already called attention to the peculiarly anomalous and perplexing nature of the case, which will, no doubt, apart from all points of extra-medical interest, remain as a *cause célèbre* in laryngological literature. As showing the extreme difficulty frequently met with in the diagnosis of tumors of the larynx, we may refer to a case related by Dr. Eugene Hahn—whose authority in questions of this kind no one will deny—before the Berlin Medical Society last month. A man, aged twenty-eight years, was suddenly seized with acute spasm of the glottis, apparently without any previous symptoms whatever. The presence of a tumor being suspected, tracheotomy was performed, and the larynx was afterward extirpated. On admission an abscess associated with perichondritis of the cricoid cartilage was found, but no malignant tumor was discovered. This case, so frankly reported by Dr. Hahn, affords further justification, if such were needed, for the caution which has led the Crown Prince's present advisers to discountenance severe operative procedures, for which there was no decisive indication, while the danger directly attending them was only too obvious —*British Medical Journal*, Jan. 14, 1888.

The American Physiological Association.—On Friday, December 30, a meeting was held at the College of Physicians and Surgeons, in New York City, for the purpose of organizing an American physiological association. The association has for its object the promotion of physiological research and of social intercourse among the physiologists of the country. The association will meet as a section of the Medical Congress every three years. The meeting was presided over by Dr. S. Weir Mitchell, and many prominent physiologists from all parts of the country were present. A constitution was adopted, and Prof. H. P. Bowditch of the Harvard Medical School was elected president, and Prof. H. N. Martin of Johns Hopkins University, secretary and treasurer.—*Science*, January 6, 1888.

The German Hospital of Philadelphia.—Dr. George W. Vogler has resigned the position of Visiting Physician.

Philadelphia Polyclinic.—Dr. Alexander W. Mac Coy has been elected Professor of Diseases of the Throat and Nose at the Philadelphia Polyclinic, to succeed Dr. J. Solis-Cohen resigned.

Medical Education in the United States, for the past Ten Years.—The Illinois State Board of Health, in its report on medical education, compares the statistics of the past ten years, which show several points of great interest:

The changes noted by a comparison with the report of 1886 show a net gain of two regular schools and a loss of two eclectic schools; while the others remain unchanged. As compared with the conditions which existed prior to the enforcement of the Schedule of Minimum Requirements—that is, prior to the sessions of 1883–84—the report shows that there are now 114 colleges which exact an educational requirement of intending matriculates, as against 45 formerly—there being no change in this respect from the previous year; that 43 colleges now exact

attendance upon three or more courses of lectures as against 22 formerly—being a gain of two over 1886—and 57 others make provisions for a three or four years graded course; that hygiene is now taught in 114, and medical jurisprudence in 112 colleges, as against 42 and 61 respectively, prior to 1883. There is an increase in the average of lecture-terms from 23.5 weeks to 24.9 weeks during this period, and 114 colleges now have terms of five months or over, and 63 have terms of six months or over as compared with 101 and 41 respectively. There is only one medical college that has a course less than twenty weeks, the Medical College of Georgia.

The effect of this improvement in methods of instruction and of the higher qualifications demanded before graduating the student is best seen in the diminishing percentage of graduates to matriculates. The tables embraced in the report now cover a sufficiently long period—from 1877 to 1887 inclusive—and deal with large enough numbers—116,529 matriculates and 37,493 graduates—to give them a positive value for this purpose. Errors arising from unusual or accidental conditions are largely cancelled or diminished in importance in these aggregates, and the inferences drawn may be accepted as fairly trustworthy.

The first fact of importance which arrests the attention in this comparison is that, notwithstanding the growth of population, the total number of medical students has never yet reached the proportions attained in 1882–3. The sessions of that winter were attended by 13,088 students; of 1883–4 by 12,763 students; of 1884–5 by 11,975 students; of 1885–6 by 12,321 students, and of 1886–7 by 12,948 students. Although there was a gain last year of 627 students over the attendance in 1885–6, the aggregate in 1886–7 was still 140 less than in 1882–3.

The effect of a higher standard of qualifications for graduation is further shown in the diminishing percentage of graduates to the total number of students. In 1882–3 out of every 1000 matriculates 322 were graduated, taking both the United States and Canada and all schools of practice into the account. In 1886–7 only 294 out of every 1000 matriculates were graduated. In the United States alone in 1882–3 out of every 1000 matriculates 331 were graduated, while in 1886–7 only 305 out of every 1000 matriculates were graduated.

The Water Tanks in Passenger Cars.—A sanitary inspection of railway cars by Dr. Reed, disclosed some unsavory conditions of water supply, which he describes as follows, in the *Sanitary News* of January 14, 1888:

I cannot close this paper without referring to the water-tanks as usually found in our coaches, of which twenty and one-half per cent. were found dirty, among which was discovered one with a baby's soiled diaper in it.

Many of these tanks are placed so as to open inside of the water-closet apartment, and I am creditably informed by railroad employés, who have had abundant opportunities for knowing, that it was not an unfrequent occurrence to find babies' diapers, dirty rags, and filth of that character, dumped into the water-tanks of our passenger coaches. So frequently was this the case that some of the railroads have made their cars more recently with the water-tanks opening at the top of the car, while others have placed them in plain view in the car, where offensive articles of that character could not be so easily introduced into them without being detected.

The analysis of the water, with a few exceptions, shows that a very fair quality of water was supplied the passengers on the roads examined. The custom of dumping ice into the water should be dispensed with, and instead a water-tank used that is so constructed as to permit of the ice being packed around the outside of the water-can proper, which should be porcelain-lined, and so arranged as to be easily got at and cleaned, a great objection now to those opening at the top of the car.

While the tops to these refrigerators should not only be double, but locked on, and no person furnished with a key excepting the proper railroad employés, the latter should be held responsible for their sanitary condition.

With such an arrangement, the drinking-water could be kept clean and free from "foreign or domestic" filth, the water kept cool but not ice-cold, and at the same time free from many impurities so frequently found in commercial ice.

Prizes for Medico-legal Essays.—The Medico-legal Society of New York announces the following prizes for original essays on any subject within the domain of medical jurisprudence or forensic medicine:

1. For the best essay—one hundred dollars, to be known as the Eliot F. Shepard Prize.
2. For the second best essay—seventy-five dollars.
3. For the third best essay—fifty dollars.

The prizes to be awarded by a commission, to be named by the President of the Society, which will be hereafter announced.

Competition will be limited to active, honorary, and corresponding members of the Society at the time the award is made.

It is intended to make these prizes open to all students of forensic medicine throughout the world, as all competitors may apply for membership in the Society, which now has active members in most of the American States, in Canada, and in many foreign countries.

Physician's Names and Proprietary Medicines. — DR. WILLIAM A. HAMMOND has caused the arrest of Dr. H. H. Kane, J. F. Phillips, and F. Coleman, officers of a proprietary medicine company, for associating his name with their remedy. They had advertised in the papers that Dr. Hammond had delivered a lecture on the use and abuse of the brain, in which he strongly recommended the patent medicine in question as the proper and only thing for persons afflicted with brain disorders to use. A picture of the famous physician also accompanied the advertisement. When the doctor saw the advertisement he became indignant, as he had not mentioned in the lecture the preparation. The penalty, should a conviction result, will be imprisonment for two years and a fine of $1000.—*Pharmaceutical Era.*

M. Pasteur.—Owing to continued ill-health, M. Pasteur has thought it necessary to offer to resign his post of perpetual secretary to the Academy of Sciences; but as the eminent biologist is held in great esteem, his application has not been granted, and he has been requested to continue in office with a *locum tenens* to do his work.—*Lancet*, January 7, 1888.

Decorations for Nurses.—M. Carnot, President of the French Republic, on the last day of the old year made a

round of inspection of the various Parisian hospitals, in course of which he decorated with a knight's ribbon Mdlle. Nicolle, the school mistress at the Salpétrière, who is now in her thirty-sixth year of service, and a Sister of Charity in the military hospital of Val-de-Grâce.—*Lancet*, January 7, 1888.

Type in School Books.—A very sensible decree has just been issued by the Austrian Minister of Public Instruction, forbidding the use of books printed with small type in public schools, as short-sightedness is so prevalent amongst school children in Austria. Scientific supervision might very properly be given to school books in this country, attention being especially directed to the size of the type, length of line, and spacing of letters and lines. In the works published by the Clarendon Press no fault can be found in these respects, and, speaking generally, the school books of this country are well printed. The chief fault in German books is their adherence to the very dazzling Old English shape of the letters, which certainly severely tries the eyes by necessitating very close attention, and the evil effect of this is aided by the paper being coarse and by the light supplied being usually insufficient.—*Lancet*, December 31, 1887.

Hospital Management.—In the report of the Dublin Hospitals Commission, Dr. Corley gives the following as the essentials of success in hospital management:

"*First.* The hospital shall contain not less than eighty beds, and after five years' participation in the grant, not less than one hundred, in daily occupation throughout the year.

"*Second.* The hospital shall be open for clinical instruction, and shall have not less than fifty paying students on its books each year.

"*Third.* The hospital shall be open to persons of all creeds, without any distinction, and clergymen of all denominations shall be admitted to see patients requiring their ministrations at any hour of the day or night.

Fourth. The staff of the hospital shall be appointed without distinction of creed or the place of education, or reference to the candidate's connection with any particular university or medical corporation or hospital, and without payment of any sum of money; and the principle of promotion from the junior to the senior appointments shall be recognized as far as may be deemed compatible with the interests of the institution. No member of the staff shall hold a similar appointment in any other hospital.

"*Fifth.* The junior appointments, such as resident surgeons and physicians, shall be filled up by examination, for which any duly qualified candidate may present himself.

"*Sixth.* The hospital shall employ as nurses only such persons as have gone through a duly recognized probationary training."

Professor Purkinje.—This veteran anatomist and physiologist recently celebrated his one hundredth birthday at Breslau.

The Care of a Population.—In his third and concluding lecture at South Kensington, Mr. Galton dealt with the influences of various kinds of nurture, training, and occupation on the average vigor, longevity, and disposition of large classes of persons. He considered that the surroundings influence future generations rather than the present. With a diagram he indicated the relative proportions of early and late marriages in Germany, England, and European Russia, showing the enormous preponderance of late marriages in the first, and of early marriages in the last; considering that, when other things are equals, early marriages are followed by large families, he led up to the amusing conclusion that the "out-put" of Russian babies reached a thousand a day. From Dr. Ogle's report upon the death-rates of varying ranks, he illustrated his remark that the quality of stock varies with the status of the parents. He then proceeded to the unforeseen and wide consequences of apparently small reforms, instancing the smallness of families in France since the law regulating the equal division of property. In strong terms he then dealt with the prevailing want of statistical imagination and our consequent carelessness as to undoubted social duties, considering that the marriages of phthisical persons should be prevented by public opinion, if not by more stringent measures. He thought that obvious sanitary neglect should be treated as manslaughter, and that legal restraint should check the pursuit of any line of conduct whose average ill effect has been ascertained. In approving terms he referred to the establishment of professorships of physical culture at Amherst and Harvard Colleges in America, and quoted from a correspondent at Wellington the opinion that the "cultivation of man as a whole, and not only in part," should be encouraged by the bestowal of degrees. In New Zealand it would appear that a prize has already been awarded to the "best-made man." Of the value of gymnasia in the hands of medical men rather than of professional atheletes, and of the importance of more rigid school hygiene, he also spoke enthusiastically. In conclusion, he gave a brief retrospect indicating his belief in the theoretical possibility of raising the standard of the race by a study of the influences that tend to *eugenism*, a word implying goodness in birth and in rearing.—*Lancet*, December 17, 1887.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING JANUARY 21, 1888.

Goldsborough, C. B., *Surgeon*.—To proceed with insane seamen from Chicago to Government Hospital for the Insane, January 16, 1888.

Heath, F. C., *Assistant Surgeon*.—To proceed to Buffalo, N. Y., for temporary duty, January 21, 1888.

Stoner, G. W., *Surgeon*.—To proceed to Wilmington, N. C., Georgetown and Charleston, S. C., Savannah and Brunswick, Ga., Fernandina, Jacksonville, and Pensacola, Fla., as inspector, December 30, 1887. (Omitted from previous lists.)

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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ORIGINAL LECTURES.

KNOCK-KNEE AND BOW-LEGS, WITH REMARKS UPON RACHITIS.

Two Clinical Lectures Delivered at the Philadelphia Hospital.

BY A. SYDNEY ROBERTS, M.D.,

LATE SURGEON TO THE HOSPITAL, INSTRUCTOR IN ORTHOPÆDIC SURGERY IN THE UNIVERSITY OF PENNSYLVANIA, AND ORTHOPÆDIC SURGEON TO THE OUT-PATIENT DEPARTMENT OF THE UNIVERSITY HOSPITAL, ETC.

LECTURE I.

GENTLEMEN: As Macewen, of Glasgow, and others, have, by the revival of the operation of osteotomy for the cure of knock-knee and bow-legs, renewed the interest in these deformities, and place themselves on record as being ardent advocates of operative procedures for their radical relief, it will be my endeavor to call your attention especially to these important malformations; and I purpose to inquire how far operations are a necessity for their correction, and what proportion and class of cases can be best treated by such means, and, also, whether mechanical methods of treatment are not fully as important as those of a more radical nature.

Mechanically considered, knock-knee and bow-legs result from an alteration in the plane of the articulating surfaces of the bones entering into the formation of the knee-joint, with or without a curving of the shaft of the femur or tibia, whereby the knee is thrown either inside or outside a perpendicular line let fall from the head of the femur to a point midway between the two malleoli. Should the knee fall inside this line, the resulting deformity is known as knock-knee or *genu valgum*, the opposite condition, that in which the knee is without the perpendicular, being called bow-legs or *genu varum*, and the causes producing these results may be summarized as: 1. Rachitis. 2. Ligamentous relaxation. 3. Central disturbances destroying the equilibrium of muscular action, or affecting the nutrition of the epiphyses.

By far the most frequent and important cause is the one first mentioned: namely, *rachitis*, which favors the production of deformity by the softening of bone and the relaxation of ligaments which occurs during its progress, whereby we have an alteration of the normal development of the cartilage and periosteum from increased cell proliferation, the resulting cartilaginous and osseous tissues being less completely matured, and much more retarded in their development than in the normal course of bone growth. Moreover, the rapidly proliferated cells are not supplied with a sufficient quantity of inorganic elements, and, therefore, a relative excess of organic material with a corresponding deficiency of lime salts occurs. In other words, the cells which are deposited are immature, half ripe in character, and the dyscrasia interferes with their normal progression toward maturity. When the disease finds expression in the epiphyses, it occurs at the epiphyseal juncture, at which point we find the cartilage filled with young cells which are neither mature cartilage cells nor true bone cells, but have a character which partakes of both. In consequence of this abnormal cell deposit we find the thickness of the cartilage is increased, and the structure has not the resisting quality so marked in health; on the contrary, the aggregation of cells forms a soft, non-resisting material which breaks down and gives away under pressure, and if this pressure be unequally distributed, bending of the bones and alteration of the plane of the joints result.

Rachitis is, primarily, a constitutional disorder, whose local manifestations fall with greatest force and frequency upon the organs of locomotion and support, the bones, epiphyses, articular surfaces of the joints, the ligaments, and muscles. The osseous changes found are due to increased vascularity of the periosteum and other nutritive centres, the epiphyses, and medullary substance. Rachitis is a disease of early childhood. Cases in which it is congenital have been reported, and knock-knee and bow-legs have been observed in the newborn. The disease most usually begins about the period of dentition, and is attended by disturbances in the alimentary tract, vomiting and chronic diarrhœa being frequent. The patients suffer also from sweating of the head, face, and neck, and prefer to lie quietly, resisting attempts to move or handle them. With this, notable weakness and marked tenderness are observed, and this weakness, noticeable chiefly in the muscles, sometimes give rise to a condition which has been mistaken for infantile paralysis, although no palsy exists. Whilst some children suffering from rachitis appear fairly well nourished, the majority have a large belly, and a puffy, flabby condition of flesh, easily distinguished from the firm, resistant feeling of healthy tissues. They are also peculiarly liable to convulsive affections, as before mentioned, and chronic hydrocephalus occurs frequently. Thirst is at times urgent; the patients sit or lie about; are silent or drowsy, and at night often rest upon their hands and knees, with their heads buried in the pillow, or toss restlessly from side to side.

Whilst these symptoms are progressing, notable changes are going on in the bones, muscles, and ligaments. I have already alluded to these changes in my general remarks on pathology, and have shown you how their chief expressions are found in the epiphyses and shafts of the bones. Clinically, it is not, however, alone in the long bones that the changes take place. The skull, with its thin and softened envelope and thickened sutures; the thorax, as shown principally in the beaded ribs, chicken-breast, and curved vertebræ, and the flattened, distorted pelvis, all bear evidences of the disease. Not all the cases, however, exhibit these universal effects of the general condition. Indeed, I have seen undoubted evidences of localized rachitis, where the disease, so to speak, had expended itself upon one locality. Thus, it is not unusual to see deformities which are unilateral in character, and one-sided cases of bow-legs and knock-knee are not uncommon. We have already

spoken of the causes which produce this condition, and will only add that, although it is found more frequently amongst the poorer classes, the wealthy are by no means exempt from it. Poor sanitary surroundings, insufficient nourishment, lack of air and sunlight, and the crowding together of many people, frequent pregnancies, and the bringing up of children "by hand," all add their quota as active agents in its production. Locality and climate also have their influence as causative factors. Thus, it is by no means a common disease amongst American children, but is very frequent in Southern races, the negro being peculiarly liable to it; and its frequency in England has caused the Germans to give to it the appellation of "*Englische Krankheit.*"

I have dwelt at length upon the general manifestations of rachitis, as it is in this stage, before local symptoms have developed, that general treatment may prevent deformity. In beginning the treatment, great care should be exercised in the selection of appropriate diet, and all errors in this and the surroundings of the patient should be corrected. The child should be regularly taken out in the open air, and "sun-baths" given. Attention should be especially directed to the proper bathing of the child, and the skin kept in good condition by these means. The diet should be digestible and nutritious, and all approved methods having for their object the proper hygienic care of the patient should be persistently and systematically employed. As to drugs, those which are directed to checking the diarrhœa after the bowels have been emptied of irritating matter are first indicated. The time-honored "rhubarb-and-soda" mixture will best accomplish the latter purpose, while drop doses of tincture of opium, with the addition of an alkali, have best succeeded in my hands in checking the diarrhœa. To improve the general condition of the child, cod-liver oil may be given, and by many it is considered a specific; but there are many objections to its use: it is apt to increase the digestive trouble, and many children cannot be induced to take it, no matter how disguised. Good, fresh butter answers admirably as a substitute, and fulfils all the indications of the oil. The compound syrup of the hypophosphites is another excellent remedy, and is readily administered for a long time. Iron is an efficient tonic, especially the syrup of the hypophosphite or the iodide. Phosphorus also has given excellent results in this as well as other wasting diseases of the bones. Such is a brief outline of the medicinal treatment of rachitis, important in all cases of the disease, but important in cases prior to the occurrence of deformity, in addition to which mechanical supports should frequently be used as a prophylactic measure. The case I now show you will illustrate this principle:

Case I. *Softening of the bones from rachitis; retention braces; improvement.*—J. M., æt. twenty-six months. The hereditary history in this case good, as to bone, joint, or lung troubles; she was apparently healthy until her eighth month, when her mother was obliged to leave her to the care of strangers. At this time it was noticed that she was not as lively as usual, had frequent diarrhœa, was peevish and restless at night, sweating freely, frequently soaking the pillow. She has never attempted to walk, but can hold herself erect by the aid of chairs. You will notice the flabby condition of the muscles, although she is apparently fairly nourished, and although presenting all the characteristic symptoms of rachitis, the large head, protuberant belly, and flattened epiphyses indicate rachitis, there is, as yet, no evidence of deformity of the lower extremities, for the child has not yet walked, and nature has evidently acted in a conservative manner, by depriving the muscles of their proper tone, thereby making it impossible for the child to throw the weight of the body upon the lower extremities, and we have happily the power to prevent, by mechanical means, the occurrence of deviations which would surely follow were the softened osseous tissues allowed to bear unaided the superincumbent weight of the body.

In this case the object has been accomplished by the application of retention braces, consisting of two steel uprights fastened to the shoe, and extending above the knee, with joints corresponding to the articulation of the knee and ankle. These allow free motion, but at the same time remove the superincumbent weight. To one point I wish especially to call your attention: when I grasp the thigh and leg of the patient, and move the knee-joint from side to side, you can easily distinguish the preternatural lateral mobility of the articulation, a common condition in rachitic subjects. This is due to ligamentous relaxation, and opinions vary as to the ligaments involved, and their action in the production of the deformities, it being considered by some that primary relaxation of the internal lateral ligament results in a separation between the articular surfaces of the knee-joint upon the inner side, allowing increased growth of the internal condyle downward and inward in the gap between its lower surfaces at the head of the tibia, while others are of the opinion that shortening of the external lateral ligament, by permitting pressure to be exerted upon the external condyle, prevents its normal growth, the internal condyle, at the same time, completing its development. While some cases occur in which ligamentous relaxation seems to be the only *apparent* cause of the deformity, they are extremely rare, and I think that the relaxation, as a rule, is secondary to, and symptomatic of, the bony changes. While much attention has been given to the external ligaments of the knee-joint as factors in the causation of knock-knee, I am sure that the *internal* ligaments of the joint, principally the *crucial*, are largely concerned in the deformity; but as to the mechanism of these ligaments as causative agents, I cannot, for want of time, enter. In the small class of cases which exhibit no evidence of rachitis, but which suffer from relaxation of ligaments, the term atonic can best be applied. They are similar to the class of lateral spinal curvatures known as habitual or functional; but, as before stated, in the majority of cases the ligamentous changes are secondary to the osseous ones, and depend upon the general condition—*i. e.*, *rachitis*.

The changes which occur in the bones, and which lead to the deformity, may be divided into three stages:

1st. The stage of vascularity, or invasion.

2d. The stage of softening, or deformity.

3d. The stage of consolidation, or sclerosis.

It is important that these stages should be recognized, as giving important indications for treatment. The second stage is well illustrated in the case before us: when I grasp the limbs, and attempt to bend the bones, a characteristic springy sensation is imparted to the hands, showing that the stage of softening is still in progress, and indicating that constitutional and mechanical treatment are sufficient.

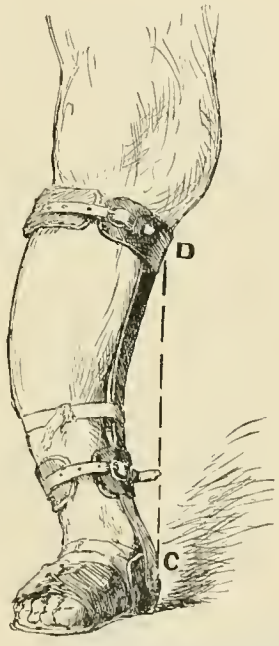
When softening has further progressed, and deformity has begun from the weight of the body upon the diseased tissues, mechanical support may still suffice; but when hardening or sclerosis has once occurred, and the bones are in a deformed position, nothing but operative measures will restore the limb to its normal position. To determine this stage in doubtful cases, I use an instrument which I look upon as an important aid to correct diagnosis, *i. e.*, the ordinary bone drill, preferably, the cog-wheel drill of Colin, of Paris; the procedure is analogous to exploratory incision prior to other surgical operations. Where the drill encounters no obstacle to its entrance into the bone, and imparts to the hand the sensation indicative of soft tissue, operative procedures are not necessary, but, should the characteristic resistance of the sclerotic stage, as if the drill were being bored through ivory, be met, mechanical measures will be futile, and operation is necessary.

I have an opportunity of showing you another case illustrative of the stage of softening with beginning deformity.

CASE II. *Bow-legs from rachitis; mechanical support; improvement.*—This patient, Mary W., is three years old; gives all the evidences of having had rachitis, and still shows symptoms of what may be called the subacute stage. You notice many of the conditions to which I called your attention in speaking of the child who has just passed out, but, in addition to these, you are at once struck with the peculiar waddling gait, and the tendency of the feet to a varus position when the child attempts to walk. This varus is not constant, as in some cases of bow-legs there may be a valgoid position of the feet. Here you again see the unusual lateral mobility of the knee-joints. In the present instance the deformity, which is quite marked, is produced by curvatures affecting both the femur and the tibia: that is to say, the rachitic process has involved the diaphyses above and below the knee-joint. This is not, by far, as common as those cases where the tibia is alone affected, in which case the deformity usually takes place at about the middle of the tibia, although the same condition, greatly magnifying the distortion, may occur at the lower third, or an anterior curvature of the tibia may be observed. When I grasp the bones firmly, I at once get a peculiar springy response, and this serves as a guide to my treatment in this stage. In answer to inquiry concerning the increase of the deformity, the mother states that the bowing has increased very rapidly during the last four or five months; that before this it was not at all marked, and she has experienced no fear of a permanent deformity, having been told by a practitioner that the child would surely grow out of it. This is a popular fallacy, and cannot be too strongly condemned. The indications for mechanical treatment are therefore very plain. In order to counteract the effect of the superincumbent weight, which falls on the lower extremities during the day in the act of walking, it becomes necessary to have something which shall relieve this, and, for this purpose, I use the conventional apparatus which I briefly described in speaking of the first case. This brace will allow your patient to go about at the minimum risk of increasing the deformity, and also give him an opportunity to get sunlight and fresh air, very important adjuncts toward improvement of his general condition. In cases in which deformity is present, this serves merely as a retention splint, and something more powerful must be used to overcome the deformity.

The brace which I have advised for the application of elastic traction, has, in my hands, in private and hospital practice, accomplished excellent results. It consists of a piece of straight tempered steel, its upper extremity terminating in a semi-circular steel band to extend half way around the limb; below, and jointed to it opposite the ankle is a steel foot piece with heel cup, which is secured to the foot by a strap passing over the instep, and a light leather shoe-piece laced over the foot. The length of the upright is regulated by the position of the curvature in the bones: in bow-legs where this occurs in the tibia, the upright should, therefore, extend only to its upper border. The brace is adjusted by securing it to the internal aspect of the limb, and the elastic element of the brace brought into play by strapping the steel upright to the leg at the point of the greatest convexity.

FIG. 1.



(Fig. 1.) It should be thus applied at night, and it is readily seen that its constant effort to return to the straight line D C exerts a continuous elastic force in a direction calculated to reduce the deformity.

ORIGINAL ARTICLES.

NEPHROLITHOTOMY.

BY D. HAYES AGNEW, M.D.,
PROFESSOR OF SURGERY IN THE UNIVERSITY OF PENNSYLVANIA.

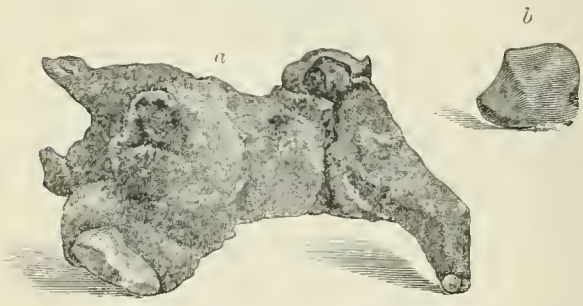
MR. S. W., aged thirty-eight, a resident of Sydney, Nova Scotia, was brought to me by Dr. McPherson, of that place. Mr. W. had enjoyed perfect health until May, 1876, when he was overtaken with a severe attack of acute rheumatic fever, lasting, in a modified form, for nearly six months, and leaving him with an ankylosed knee-joint. The year following, the fall of 1877, he had a

severe paroxysm of what was regarded as renal colic, and every succeeding month for five months, similar attacks were experienced, lasting seldom less than twenty-four or forty-eight hours. From this time until 1879, he enjoyed a complete immunity from pain, but after this long exemption was again seized with another paroxysm of unusual severity and duration, which confined him to his bed for an entire week. During all this time, no calculi were passed, and comparatively little vesical irritation was experienced.

From this period onward, until September, 1887, he continued in fair health, experiencing, however, at irregular intervals, more or less pain in the left lumbar region, seldom lasting over half an hour. It was now that the urine became quite turbid. In October, the pains in the left lumbar region became more severe, scarcely ever intermitting. These pains were not confined to the left lumbar region, but extended over the entire left side of the abdomen, reaching in not a few instances to the right loin, also shooting down the left thigh, and into the left testicle, accompanied by strong retraction of the gland.

About the latter part of October, the urine became thick, ropy, and offensive, and the old pains almost unendurable. This condition was again followed by a notable abatement of pain, and a marked improvement in the appearance of the urine.

At the time the patient arrived in Philadelphia, which was the last week in November, he was again beginning to suffer from the lumbar pains, attributed, and perhaps correctly, to the effects of the long journey from Sydney to this city. The urine, on examination, was found to contain a considerable quantity of pus, blood, and some renal epithelium. The diagnosis was stone in the left kidney, and the operation of nephrolithotomy recommended. To this the patient readily assented, and on December 1st the left loin was opened by the usual incision, the adipose tissue around the kidney broken up, and



Renal calculi (less than natural size).

a stone detected by the touch in the pelvis of the organ. On opening the pelvis, a considerable quantity of offensive pus and urine escaped. The stone proved to be one of great magnitude, not only filling up the pelvis of the gland, but sending prolongations into the infundibula (*a*). After its abstraction, a second concretion (*b*) was detected in the ureter, and removed, the two weighing 473 grains. A large sized drainage tube was introduced through the wound into the pelvis of the kidney. After washing out the parts thoroughly with a solution of the mercuric chloride (1 to 1000), the incision was closed by two rows of sutures, the deep ones, consisting of catgut, brought together the lumbar aponeurosis, and the superficial ones, of silkworm-gut, inclosed the integument, subcutaneous tissue, and muscles. The external dressing was composed of the ordinary antiseptic materials. A portion of the drainage tube was removed on the thirteenth day, and the remainder on the nineteenth day. On the thirteenth day, the patient was allowed to sit up in bed, and on the eighteenth day was moving about his room. From the time of the operation until he left the hospital for his home, he was literally without an untoward symptom.

SIX CASES OF INJURY TO THE SHOULDER, FOLLOWED BY PARALYSIS.

BY GUY HINSDALE, M.D.,

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Paralysis of the arm following injuries about the shoulder-joint has long excited the interest of both surgeons and neurologists. In those instances where luxation has occurred, stretching or laceration of the branches of the axillary plexus is usually assigned as the cause of the paralysis, but cases are met with in which the humerus has not left its socket, and yet paralysis of the arm of very serious nature follows a blow. To account for this it is necessary to look to something else than the head of the humerus. It is possible that the brachial plexus may be bruised by forcing the clavicle upon the first rib, at which position the nerve trunks are liable to be compressed.

The first of the following cases seems to be a good illustration of this affection.

Case I.—Peter R., æt. fifty-nine, was admitted to the Infirmary, April 15, 1887, under the care of Dr. S. Weir Mitchell. He was perfectly well before the present trouble. Fourteen months previously he fell down a flight of eight steps, and struck the point of the left shoulder on the leg of a turning lathe. He was unconscious for a few moments. The arm instantly became useless, but was not painful. Sensibility was lost from the fingers up to the neck. It was a month before he could bend the fingers; he then could move them slightly. Apparently all the cords of the brachial plexus were affected. There was no dislocation or fracture of any bone.

Fourteen months after the accident the condition was as follows: *Motion:* Can pronate the forearm, but cannot supinate completely. The fingers and hand are normal; grip powerful. Extension of the arm: triceps, fair; biceps, nil; pectoral muscles, fair: suprascapular, infrascapular, and deltoid, nil. Trapezius and levator anguli scapulæ, fair. The wasted condition of these muscles and the apparent luxation of the shoulder-joint are very noticeable. Two fingers could be laid in the sulcus between the clavicle and head of the humerus. *Sensation* unim-

paired. Faradism produced in the deltoid only slight fibrillar contraction; in the infra- and supra-scapular, nothing. In the pectorals, trapezius, levator anguli scapulæ, rhomboid, latissimus dorsi, and triceps, a good response. Galvanism produced no action in the scapular muscles. In the triceps it was lessened, but no serial alteration.

Galvanism was ordered three times a week, eighteen to twenty milliampères, with daily massage; a hypodermatic injection of one-fiftieth grain of strychnia was given every other day. The arm was also placed in a sling, with a rubber supporting band, so as to hold the humerus up and relieve wasted and fatigued muscles. It is proper to say that galvanism and strychnia had been given him during several months of previous treatment at the University Hospital Dispensary for Nervous Diseases.

Three months in the wards of the infirmary, and five months attendance at its dispensary have done a great deal for this man. At first he could not use his fingers; could hold nothing in his hand; he could barely move them. His grip was very weak. He is now able to dress and feed himself, and the motions are greatly improved, though the supra- and infraspinati, biceps and triceps, are much wasted. Burq's dynamometer shows sixty-three in the right hand, and fifty-three in the left. The arm has gained three-eighths of an inch in circumference in the last three months.

CASE II.—P. E. C., æt. sixty-six, a clerk, was admitted to the hospital June 13, 1887, under Dr. Osler. He was injured eight weeks previously in an altercation in which two men fell upon him, and the right shoulder was dislocated. This was restored after twenty-four hours under ether by traction with the foot in the axilla. For this purpose, the operator's shoe was removed. No bones were broken; the shoulder was swollen, and extremely painful. A Velpeau dressing was applied for ten or eleven days. Motion of the fingers and of the hand was completely lost at the time of the accident, and has never been restored. The forearm could be moved a little after the accident, but motion is now lost. The arm cannot be moved freely.

Electrical examination. Faradic current: no response in any of the muscles of the arm, except in the triceps, where it is moderate, and in the extensors and flexors of the carpus, where it is slight. *Galvanic current:* reaction of degeneration marked in the deltoid and biceps, also in the extensors and flexors of the forearm. In the latter muscles it is very slight.

Pain is now present in the arm, especially so when the patient is overheated. The fingers are swollen and œdematous.

Dr. Osler directed massage and a descending galvanic current to be applied. At the end of one week, the reaction of degeneration remained. At the end of six months, motion is greatly improved, and all the muscles have increased in size. The œdema has entirely disappeared.

CASE III.—Perry M., of Ontario, æt. nineteen, applied at Dr. Osler's Clinic in September, 1887. Two and a half years previously he was struck by ice falling from a roof. The blow was received on the back and left shoulder. He was unconscious for fifteen minutes. A surgeon who examined him said that no bone was broken, but the left clavicle was dislocated at the sternal end, and touched the right clavicle. The skin was not broken or bruised. The patient became delirious, and was very ill. Sensation was entirely lost at first, but is now partially restored. He has never used the arm since. Motion is very slight in the biceps, in the deltoid it is gone; the pectorals move slightly. The fingers can be very slightly flexed. The wasting of the shoulder-girdle muscles and forearm and arm is extreme.

Electrical examination shows a slight response to faradism and galvanism.

CASE IV.—Wm. D., æt. forty-eight, applied for treatment three or four weeks after a fall, in which his left arm was under him. This gave him pain in his elbow and shoulder for one week; after this he lost power in the wrist and hand. On application, the arm and shoulder were found greatly wasted. He had great difficulty in placing the hand on the back of the neck, and was unable to extend the wrist or the thumb. A slight tap, however, over the musculo-spiral nerve caused extension of the wrist, and the slightest tap over the deltoid caused fibrillar contractions. The patient had pain on the right side of the cervical spine, extending up to the head. Wet cups were applied to the back of the neck and over the painful nerves every other day for a week. Three or four ounces of blood were taken each time. A blister, three by four inches, was then applied to the cervical spine.

In one week, the patient was able to extend the wrist better than before. At the end of two weeks, the cautery was applied to the neck, and ten grains of iodide of potash were given *t. i. d.*, and the patient continued to improve.

CASE V.—Hugh G., æt. sixty, under Dr. Sinkler. While carrying two buckets of water five or six months before applying for treatment, fell, striking his right shoulder and wrist. No bones were broken. The limb remained swollen and painful for three or four weeks, and was painful at the time he came to the hospital. The forearm and hand during the previous two months had wasted.

On examination, the muscles of the hand, forearm, and arm were found to be decidedly atrophied. All the movements of the arm, forearm, and wrist were preserved: the latter movement caused pain. Flexion and extension of the fingers were stiff. He could make a fist. The fingers were contracted and could not be extended fully. He could not abduct or adduct the fingers or thumb. Loss of sensation to compass points in all fingers. He localized sensation well. There was hyperæsthesia of the palm of the hand. Dynamometer: R. 60; L. 100. The electrical conditions were as follows: Lessened reaction to galvanic and faradic current in the right forearm; normal in kind. In the hand, no reaction to faradic current. The anodal opening and cathodal opening contractions were not obtained. The anodal closing was slightly greater than the cathodal closing contraction. The galvanic current was ordered three times a week.

Case VI.—Thomas H., fell about fourteen feet, three months before applying at Dr. Sinkler's Clinic for treatment. He struck on his head, cutting it, and bruising his shoulder. A scar, one inch in length, was seen over the left parietal bone. Consciousness was lost for half an hour after the accident, after which paralysis of the left arm and left side of the face was observed.

At the end of six weeks the face was much improved, although shortly after the accident the left eyeball became apparently shrunken, and withdrawn into the socket. One month later pain occurred in the ulnar distribution of the left arm, extending gradually to the extremity. At the same time a "shivery feeling" was experienced down the left arm, if the left side of the face and ear were particularly twitched. At the time of examination, pressure made over a sensitive spot just above the sternal end of the clavicle, caused a thrill in the hand and arm. Severe pressure caused pain.

The following condition was recorded by Dr. Sinkler: On inspection the arm and shoulder were much atrophied. The head of the humerus gave the *appearance* of dislocation. The deltoid was gone; the pectorals much wasted. There was a patch of anæsthesia two inches above the elbow, covering an area five by two inches, on the external aspect of the left arm. Hyperæsthesia of the surface over the pectoral muscle; no sensation below the elbow. The hand appeared shiny. A tap over the muscles of the arm and forearm caused a reflex; over the pectoral, pain. A water blister had appeared on the outer surface of the end of the middle finger. The left arm was hotter than the right; there was no spot painful to pressure on the arm. A needle prick on the outside of the arm causes a small cup of goose-flesh around the prick, and bleeding is slow. A prick on the end of the fingers bleeds occasionally, although the hand is congested. After a few minutes the point where the needle was inserted presented the appearance of a small wasp sting.

The treatment which Dr. Weir Mitchell relies upon in all of these cases of atrophy and muscular paralysis consists of galvanic or faradic electricity, manipulation, and alternate hot and cold douches, with a subcutaneous injection of strychnia, one-sixtieth of a grain, so that the groups of spinal ganglia, which have long been inactive, may be given a special increase of irritability. It is not necessary that the injection should be made into the palsied muscle.

Electricity may be employed so soon as the acute symptoms attendant on the accident have abated. By this agent nutrition is maintained; a fresher and larger blood-supply is brought to flaccid muscles than if left to voluntary movement. The current to be chosen is the one which best moves the muscles. The galvanic current interrupted or reversed rapidly in the strength of six to ten milliampères will, in bad cases, have to be depended upon when faradism fails. Even in these cases, after a course of galvanic treatment, the muscles may be found to be responsive to a strong induced current, which may then be substituted. A faradic battery, though apparently without power to move a single palsied muscle, may yet do great good, if patiently used. Daily applications of the primary current for from fifteen to thirty minutes will often increase the bulk and warmth of a limb before irritability of the muscles is perceived, and should encourage to further effort.

At the outset, when the reaction of degeneration is met with, or when no reaction at all obtains, everything should be done to favor contraction. The tissues themselves may be soaked in warm salt water, and while yet warm, the electrodes covered with absorbent cotton moistened in hot salt water, should be applied. In this way the skin is reddened, conduction becomes easier, and the muscle response improves. Pain would be an indication for the use of a lesser current, and if neuralgia should supervene, electricity would have to be suspended for a time. This, however, would be an encouraging sign.

Nélaton, who has described this class of cases, took a very unfavorable view of them, but with better means at our command much more can be accomplished than in his day.

ARACHNOID CYSTS OF THE BRAIN.[1]

By EDWARD T. BRUEN, M.D.,
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Case I.—Mary C., æt. thirty-two, died in the Philadelphia Hospital September 21, 1887.

Autopsy.—On removing the dura mater, four cysts were found situated upon the cortical portion of the brain. There were two cysts on each side of the median fissure; those on the right side were irregular in shape, and each somewhat larger in size than a walnut. They were situated mostly over the occipital lobe, but the outer one particularly extended over a portion of the parietal lobe. On the left cortex, the cysts were much larger; the one close to the longitudinal fissure partly covered the occipital and parietal lobes, and was three inches in length by an inch in diameter. The outer and smaller cyst occupied a position over the occipital lobe, but extended somewhat over the parietal lobe. The walls of the cysts were composed of thin lamina of membrane, and contained a clear fluid.

Owing to the pressure occasioned by the cysts, extensive atrophy of the convolutions of both occipital lobes had occurred, but upon the left side the convolutions of the superior portion of the parietal lobe had been decidedly involved in the atrophy consequent upon the pressure. This process was so marked that the surface of the left cerebrum was depressed half an inch below that of the right, and the entire left hemisphere occupied by the cysts appeared distinctly smaller. The close

[1] Read at the College of Physicians of Philadelphia, January 4, 1888.

proximity of the cysts upon the left side to the fissure of Rolando shows that the motor tract on this side of the brain must have been subjected to irritation by pressure during the development of the cysts.

This specimen has two special aspects of interest, the pathological and the clinical. Considered from the standpoint of pathology, I incline to think the cysts were congenital, because they were bilateral, and associated with marked atrophy of the cerebral convolutions.

The cysts may have originated from extravasation of blood into the sac of the arachnoid. The cause of such extravasation may be difficult to explain; but instrumental deliveries in childbirth have been supposed to share in determining this condition, and the same may be said of falls or blows received on the head in infancy.

The following case, taken from the Reports of the Norristown State Hospital for the Insane, 1885, seems an example of large arachnoid cyst from extravasation of blood:

Autopsy, eight and a half hours after death.—On raising the calvarium, which exhibited nothing unusual, two large hematomata were found, completely covering the superior aspect of the hemispheres—that is to say, they completely filled the vault of the calvarium. The walls of the sacs were quite firm, and they contained a dark bloody liquid. They separated easily from the dura, and were in no way attached to the pia. The pia was slightly opaque and thickened. The diameter of the sacs at their thickest portion was upward of an inch. The convolutions of the brain were small and shrunken. On section, the gray matter appeared thin on the upper surface of the convolutions, but normal in the depths of the sulci. The substance of the brain was firm. The lateral ventricles showed slight reddening of the ependyma.

Microscopic examination of the cortex revealed no change beyond an apparent decrease in the number of cells in some places, and a slight general increase in the neuroglia.

Arachnoid cysts are seldom observed in a recent state, and from their usually having existed for a long period before they are examined, the effused blood is found to have already undergone considerable modifications. The fluid usually is thin, clear, and serous. The walls of arachnoid cysts are commonly adherent to the dura mater by loose adhesions, and are at first brown and rough, even laminated, becoming in lapse of time smooth and polished.

The pressure of such cysts upon the cerebral hemispheres may produce atrophy of the convolutions, as in the case under consideration. The pressure of arachnoid cysts sometimes may so diminish the thickness of the parietal bones as to cause a local bulging tumor known as external, partial, or local meningeal hydrocephalus. It is possible for the entire arachnoid sac to become one large cyst. There is a specimen of this so-called external or meningeal hydrocephalus in the Wistar and Horner Museum at the University of Pennsylvania.

It is interesting to note that arachnoid cysts may contain concretions of cholesterin, cholesteatoma, and the scales may be interwoven with extremely fine microscopic hair. Even small plates of bone have been described in the walls of these cysts.

Arachnoid cysts must not be confounded with cysts due to extensive loss of substance in the interior of the brain, whether due to hemorrhage, softening, or inflammation which leads, after absorption of the detritus, to the formation of cavities which are generally filled up in part by clear or turbid liquid. This special state of the brain has been described as the Gruyère cheese condition, or état criblé, because the softening occurs in small patches, and the little cavities, when numerous, give the tissue a cribriform or sponge-like appearance.

Ziegler states that when softening has occurred round a small arterial branch, the space left vacant on absorption of the products of disintegration is often filled up by an accumulation of liquid in the adventitial lymph channel belonging to the vessel, which latter then looks as if it ran through a wide lymph-sac, resembling that caused by simple localized lymphatic stagnation or engorgement. When such cysts are large, and lie just under the pia mater, or at least not very deeply, the overlying tissue in general sinks in and leaves a sub-pial or sub-arachnoid space, which soon fills with liquid (see also monograph by Kundrat, "Porencephalie").

The chief interest pertaining to Case I. relates to its clinical history:

The patient had been the subject of occasional epileptic convulsions for twenty years. She passed four years in the Insane Department of the Philadelphia Hospital when she was twenty-four years of age, and during the last two years she has been at intervals an inmate of the wards for nervous cases in the Philadelphia Hospital. When I first saw the patient she was suffering from violent spastic contractions of the extensors of the arms and hands, legs and feet. The head was frequently violently retracted and fixed in full extension, with the face turned to the right side. The muscles of the lips and mouth were not markedly affected, but the speech was hesitating, and articulation imperfect. The spastic contractions of the muscles were not constant.

The clinical history during the four weeks she was in my wards was marked by a febrile movement of the continued type, typical of typhoid fever. The typhoid state was present, also diarrhœa. Indeed, the diagnosis of typhoid fever was entertained as the most probable interpretation of the febrile symptoms, and at the autopsy the characteristic enteric lesions of typhoid fever were discovered.

During the progress of the case, it may be noted that there was conspicuous absence of symptoms pointing to inflammatory disease of the cerebral membranes, while, on the other hand, the spastic contractions, and the retraction of the head and neck already mentioned, rendered probable the suspicion of central cerebral mischief, since local spasms, which

go under various names, such as cramps, twitchings, epileptoid attacks, athetosis or athetoid movements, are common symptoms of the morbid growths which affect the cortical motor area.

I have received from Dr. Wharton Sinkler the following notes of a case which has recently been under his care. The symptoms were so similar to those which I have described in the case which forms the basis of this paper that it seems probable that there are lesions in the same region, possibly also of a cystic character.

Case II.—John S., æt. forty-four years, married. Occupation, "steam packer." Applied for treatment at the Orthopœdic Hospital and Infirmary for Nervous Diseases, August 29, 1887. He has always had good health except attacks of rheumatism. Denies syphilis, and says he has been temperate. About two years ago he had an attack of a convulsive nature while at work. It was attributed to excessive heat. After this attack he worked for eight or nine months, when he had another, and, after the convulsive seizure on this occasion, he continued to shake all over for several hours. Two weeks later he had a third attack, and since then he has not been able to work. The trouble was a general trembling, with unsteadiness of gait, and at times the face and left leg were more affected.

Present condition.—The patient walks with extreme unsteadiness, due to almost complete want of power of coördination. The walk is like that of an ataxic. When he attempts to walk, the arms are thrown about in various directions, and the fingers open and shut spasmodically, assuming the various positions seen in athetosis. While sitting there are occasional twitches of the left leg, but otherwise the limbs are at rest. The face, however, undergoes remarkable contortions, first one side and then the other. These spasmodic contractions of the facial muscles are most marked if he attempts to speak. The speech is much affected. There is no aphasia, but the words are jerked out in an irregular and hesitating way, but he does not use the wrong words. His mind is not impaired to a marked degree, but he is less intelligent than formerly; he is able to read; the movements of both hands are incoördinate, and he feeds himself with much difficulty. Dynamometer: R. 100; L. 50; knee-jerk exaggerated on both sides; ankle clonus present. The eye-ground was examined by Dr. de Schweinitz, and no anomalies were found.

The patient was admitted to the hospital and remained for several weeks. At first he had two or three convulsions, in which he rolled out of the bed, and was unconscious for a short time. He was given iodide of potassium in increasing doses, up to one hundred grains, three times a day. He gained flesh and improved up to a certain point, but afterward became worse. No convulsions had occurred for some time before he left the hospital.

A RARE CASE OF PAINLESS DISTENTION AND PROLAPSE OF THE BLADDER TWO MONTHS AFTER CONFINEMENT.

By S. J. RADCLIFFE, M.D.,
of Washington, D. C.

Without excuse for its delay, though late, I think the following unique case worthy of record. It is one of those accidental occurrences sometimes met with in practice, often quite unexpectedly, which puzzles and puts one to his wits' end for solution. On the promptness to recognize and to relieve in such cases depends always the welfare of the patient. Failure to recognize or correctly diagnose, at a sudden summons, in these emergencies might often result disastrously or even fatally.

Mrs. A., aged thirty-five years, mother of two children, in good health, was confined with her third child, Sept. 17, 1886. She had a quick, natural labor, and the child was delivered without difficulty. She convalesced rapidly, and after the usual period I left her in her ordinary health.

November 12th, following, about two months after confinement, on a pleasant fall day, in company with her husband, she walked, pushing her babe before her in a little child's carriage, some ten or eleven squares, about three-fourths of a mile, to pay a visit to a relative. On her arrival at her place of destination she was taken suddenly ill, and I had an urgent call to see her.

On my arrival I found her in an almost collapsed state. Her countenance was pale, her surface cold, her pulse small and quick, the whole body agitated as if with a chill, and she seemed to be suffering from profound shock.

She could scarcely describe her feelings or symptoms, but referred her ailment to the lower part of her abdomen. On placing my hand upon the abdomen, however lightly, she could not bear the touch on account of the pain it produced. The entire abdomen, at least to the umbilicus, was equally tender and admitted of no manipulation. I questioned her in regard to the condition of her bowels, uterus, and bladder, but elicited nothing definite. She replied as well as she could that she had been careful of herself, and had had proper attention, and she had felt no inconvenience or discomfort until now. She thought she had had a passage from the bowels, and also passed her urine that morning, but was not certain, and so far as she knew she had had no uterine trouble since her confinement.

I suggested that the only rational way to determine the cause of her illness, which was important as the symptoms were more or less uncertain, was to make an examination per vaginam, to which she willingly consented.

On attempting to introduce my finger into the vagina, the patient being on her back, it came at once in contact with a round, tense, smooth projection or tumor, slightly elastic and of uniform outline, completely filling the mouth of the vagina to the vulva, by separation of which it could be easily seen. I was not certain at first whether it was the walls of the vagina in a prolapsed state dragging

some organ with it, as the uterus, or the uterus itself, in a condition of prolapse pressing down upon it; an abscess, or hæmotocele, or other extravasation, or even a hernia of the bowels. I could pass my finger only at the posterior aspect by pressing down the perineum, and by keeping my finger in that position and gently pressing upon the abdomen in a wave-like motion; above the symphysis pubis I found the impulse communicated to the tumor, and my finger, and after several trials I concluded it must be cystic, probably a distended and prolapsed bladder due to dysuria from partial or complete paralysis of either the bladder or sphincter vesicæ, or both.

There was no dribbling, or any evidence of the passage of urine and the urethral orifice was intact. The parts contiguous to the meatus were not swollen or painful to the touch, and there was no evidence of diseased structure anywhere discovered by the closest inspection.

I at once introduced a long, soft elastic catheter into the bladder, and the diagnosis was verified directly by the passage of a full stream of urine, and I drew off two-thirds of a large china basinful of dark, amber-colored urine, probably two quarts or sixty-four ounces, free from bad odor, and appearing to be of recent accumulation. After the discharge the tumor subsided completely, admitting my index finger freely into the vagina, and permitting an examination in any direction, which revealed no other displacement, and showed only a dilated condition of the anterior wall of the vagina.

The most pressing symptoms now disappeared, warmth returned to the body, the pulse increased in strength and volume, she could bear more readily pressure upon the abdomen, and in a short time she was free from pain or distress. I enjoined her to keep quiet; gave her some quieting medicine, containing morphia and potassium bromide in camphor water, and left her quite comfortable.

I saw her again the same evening, and as she had not voided her urine, I introduced the catheter and evacuated about two ounces.

She had not perfect control over her bladder for something like a week after her attack, and I was obliged to repeat the catheterism each day for the first few days twice daily, and after that once daily, and when I discontinued my visits I left the catheter with her, as she had learned to use it herself, and I directed her if she felt any lengthy continuance or retention of urine to use it or send for me. She had no further trouble, however, or necessity for its use, and seemed to recover from the affection completely.

The points of interest presented in this case are: the painless and apparently sudden distention of the bladder, almost to the stage of rupture, without giving distinctive warning of such a condition; the great and persistent shock to the general system it produced, and the relation existing, if any, to the recent confinement of the patient.

It is a matter of great surprise or wonder that in the midst of apparent good health, at least without any show of depreciated vitality, and in a sound condition of the organ itself, the bladder could have so filled, possibly by gradual additions, or it may have been by rapid secretion, until it had measured its utmost capacity, even to the verge of rupture, without giving sooner some decided evidence of its impending danger.

At the birth of the child there was no delay in the passage of the head through the lower strait, and consequently no great amount of pressure upon the neck of the bladder, or injury to the soft parts along its course. There was nothing during her lying-in or getting-up indicating any disturbance of its function. She thought she had attended to herself and to its evacuation daily, and felt no unpleasant symptoms or discomfort in doing so. The first ill feeling she had of any kind was the sudden shock she felt after her long walk, but which she did not refer particularly to the bladder. She said she then had an indescribable feeling of exhaustion, sinking or fainting and would have fallen if she had not been supported.

There was no stricture of the urethra or prolapse of the uterus, and no other pressure to obstruct the flow of urine.

It is possible that inattention or negligence of her duty to herself that morning, with the long, fatiguing walk, and a somewhat relaxed condition of the system, and probably also, in addition to the fatigue, an overheated state of the body, constituted some of the factors in the case, or at least were some of the exciting, if not the remote, causes of the trouble.

Excessive exercise, we know, increases the secretion of urine by the kidneys. This is a physiological fact, demonstrated by frequent experiments. Disassimilation is then more active, and consequently a greater effort is made to get rid of the effete, azotized matters which the blood takes up during the process of disintegration. This is, of course, governed in a great measure by the state of the circulation, the amount of blood-pressure, the condition of the nervous system, and the amount of transpiration, and also by the quantity of fluid taken.

The true pathological condition was an over-distended bladder, producing paralysis by distention, and inability to contract on itself or its contents; but what brought about this condition it is difficult to determine, however much one may surmise.

The shock was no doubt caused by or due to the generally lowered or depressed vitality at the time, it may be to the fatigue of the patient, and to the immediate disturbance or impairment of a vital function—the impression being made through the sympathetic system, or by reflex action, and involuntary in its nature; familiar examples of such reflexes are often presented, as in the often repeated one of simply introducing a catheter. The relation of the recent confinement to the case could hardly

be considered important, as its remoteness, and doubtless complete recovery from that state would possibly preclude consideration. A very important item to be considered in the case was the diagnosis. Any delay or failure in recognizing the state of the patient would have resulted in rupture of the bladder. In her complicated condition this was a very nice point, and called for prompt action.

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MEDICAL PROGRESS.

Antipyrin in Hay Fever.—DR. ADOLPHE BLOCH, formerly physician to the Havre Hospital, has used antipyrin with excellent results in a case of spasmodic rhinitis (hay fever). The patient was a man aged thirty-three, who complained of cold in the head, from which he had suffered for two years. The affection manifested itself, in the morning on rising, and in the afternoon when the window was opened, by painful attacks of sneezing, with a copious discharge of watery mucus. There was severe itching and pricking in the eyes, which watered incessantly; and pain in the head over the frontal sinuses. These symptoms completely disappeared during the intervals between the attacks. The throat and the nasal fossæ were normal. On July 6, 1887, 30 grains of bromide of potassium were prescribed; these were administered daily, morning and night, in syrup of orange-peel. From July 18th one pill, containing ¼ of a grain of extract of belladonna, was given every morning. The interior of the nose was constantly painted with a solution of hydrochlorate of cocaine (one to thirty parts of water). This treatment was continued for a week. The affection disappeared for two days, but subsequently reappeared. The dose of extract of belladonna was then administered twice daily. Ten days later, finding this treatment did not produce satisfactory results, M. Bloch ordered 30 grains of antipyrin daily at the hours at which the attacks usually came on. After the first dose the affection ceased. During eight days only two slight attacks occurred. The treatment was discontinued for six days, during which there were no attacks; it was then resumed. During twenty days only two slight attacks occurred; 15 grains of antipyrin were then administered daily before breakfast. The treatment was discontinued from September 20th to October 3d. On November 8th the patient stated that the hay fever had disappeared since the early part of October, although he had ceased to take antipyrin. M. Bloch considers that the anæsthetic action of this substance was not confined to the sensory and secreting nerves of the nasal fossæ; it is highly probable that the special action of the antipyrin on the encephalic nerve centres caused the hyperæsthesia of the Schneiderian mucous membrane to disappear.—*British Medical Journal*, January 7, 1888.

The Value of Salol.—The *British Medical Journal* of December 24, 1887 writes as follows regarding the value of salol:

According to the most recent observations the principal effect of the administration of salol is to produce a marked and immediate remission of the pain in cases of acute rheumatism. Its effect on the temperature, however, is less marked than that obtained by means of the salicylate of sodium, and the relief afforded is of much shorter duration. In fact, unless the patient is kept well under the influence of the drug the suffering returns in its original intensity. Salol is, to all its intents and purposes, innocuous, and is said never to give rise to toxic symptoms. Even the discomfort which not infrequently follows the internal administration of salicylate of sodium has not been observed with salol. Hence, whenever the use of the former drug is contraindicated, salol will be found both useful and reliable. The best effects were obtained with it in the treatment of subacute rheumatism, and the patients soon learn to appreciate the relief which follows its administration. Salol is insoluble in pure water, but is slightly soluble in organic liquids of alkaline reaction. It is best given in the form of compressed tablets, pills, or in an emulsion.

Salol, for External Application.—Salol collodion;

Salol	ʒ 1.
Etheris	ʒ 1.

add

Collodion. flex.	ʒ 7½.

Especially useful for excoriated nipples.

A salol ointment for burns:

Ol. oliv.	ʒ 15.
Salol	ʒ 2½.
Aq. calc.	ʒ 15.

—*Centralblatt für die Gesammte Therapie*, January, 1888.

Ovaroclasia.—From *Gazetta degli Ospitali*, No. 70, 1887, we learn that PORRO has devised an operation in which he crushes or destroys ovarian tissue in cases where the removal of the ovary is contraindicated. It has been successful in several cases.

Paraplegia from Disease of the Urinary Organs.—ETIENNE concludes his study of this subject as follows, in the *Revue Gén. de Clinique et de Ther.* of December 22, 1887:

In the course of an acute affection of the urinary organs disturbances of motion and sensation in the lower extremities may occur at any time. Such cases are rare; and in the great number of cases the lesions of the urinary organs are not a cause but a consequence of nervous disease. These cases occur most frequently in the neurotic.

Two Successful Extirpations of the Larynx.—DEMONS, of Bordeaux, reported at a meeting of the Paris Academy of Medicine on December 20, 1887, two cases of extirpation of the larynx for cancer. The first, a partial exsection, was performed in May, 1887, and the second in June, 1887. Up to the date of meeting the patients were without inconvenience and in good health. They were not using artificial larynxes.—*L'Abeille Médicale*, December 26, 1887.

Salt in Milk for Children.—JACOBI, in the *Archives of Pediatrics* for January, 1888, writes that the physiological

effect of chloride of sodium is very important, no matter whether it is directly introduced through the mother's milk, or added as a condiment to cow's milk, or vegetable diet. Both of the latter contain more potassium than sodium, and neither ought ever to be given, to the well or sick, without the addition of table salt. A portion of that which is introduced may be absorbed in solution; another part is, however, broken up into another sodium salt and hydrochloric acid. Thus it serves directly as an excitant to the secretion of the glands and facilitates digestion. Therefore during diseases in which the secretion of gastric juice is interfered with, or in the beginning of convalescence, when both the secreting faculties and the muscular power of the stomach are wanting, and the necessity of resorting to nitrogenous food is apparent, an ample supply of salt ought to be furnished. The excess of acid which may get into the intestinal canal unites with the sodium of the bile in the duodenum, and assists in producing a second combination of chloride of sodium, which again is dissolved in the intestines and absorbed. Its action in the circulation is well understood: it enhances the vital processes, mainly by accelerating tissue-changes through the elimination of more urea and carbonic acid.

A very important fact is also this: that the addition of chloride of sodium prevents the solid coagulation of milk by either rennet or gastric juice. Thus cow's milk ought never to be given without table salt, and the latter ought to be added to woman's milk when it behaves like cow's milk in regard to solid curdling and consequent indigestibility.

Habitual constipation of children is also influenced beneficially, for two reasons: not only is the food made more digestible, but the secretions of the alimentary canal, both serous and glandular, are made more effective by its presence.

The Isolation of School Children Suffering from Contagious Diseases.—Ollivier, in *Gazette Heb.* of December 30, 1887, advises that children suffering from variola, scarlatina, and diphtheria be isolated for forty days; those suffering from varicella and measles for twenty-five days. He advises two full baths with soap for each convalescent, and the thorough disinfection of clothes and rooms; children should not be admitted to schools without clean health records, signed by physicians.

Obstetric Cones.—Since the local anæsthetic properties of cocaine have been discovered, among the many purposes for which it has been applied is that of relieving the earlier labor pains by painting with it the os uteri in primiparæ, or when the os is rigid; but in order to do this adequately, the use of a speculum is necessary. The obstetric cones recently made do away with this difficulty. They are hollow, made to fit the index finger, and can thus be very readily applied to the part desired. They are made with one, two, or three grains of cocaine, the excipient being oil of theobroma, and they also contain three grains of boric acid. The excipient itself acts as a lubricator to the parts. Therapeutically they fulfil their purpose very well, and from a pharmaceutical point of view they seem to be incapable of further improvement.—*British Medical Journal*, January 7, 1888.

Digital Divulsion of the Pylorus.—From *Gazzetta Degli Ospitali* of December 25, 1887, we learn that Brichetti has recently performed digital divulsion of the pylorus for stenosis of extreme degree. The operation lasted about forty-five minutes. The stomach was closed by Lembert sutures, and the abdomen was sutured by deep and superficial stitches. Strict antisepsis was observed, and when the report was made, twenty-four hours after the operation, the patient's condition was good.

A Prescription for Asthma.—Professor Beaumetz prescribes:

Potass. iodid.	ʒ 3¾.
Tinct. lobeliæ	ʒ 3¾.
Aquæ destil.	ʒ 7¾.

M. S.

A teaspoonful or tablespoonful may be taken, in a glass of beer, at meals.—*Journal de Méd.*, December 25, 1887.

Sulphide of Carbon in Elephantiasis.—In the *British Medical Journal* of December 24, 1887, appears a letter by Dr. P. D. Anthonisz, of Ceylon, giving the results of the use of sulphide of carbon in elephantiasis, both acute and chronic, as tried by himself and a few of his medical friends. In some of the acute cases, the reduction of swelling was prompt and complete, in others it was gradual but satisfactory. In one, a case of thirty years' standing, a year's treatment, begun when the legs were as large as the man's waist, left them about the size of his thighs. The dose mentioned in the latter was two two-grain pills per diem, to be continued for a lengthened period, except when the drug irritates the stomach, as it will do from time to time. When the ill effects have passed, the medicine should be renewed. The writer adopts the theory proposed by Dr. Manson, of Amoy, some years ago, that the disease is due to the presence, in the blood, of the *filaria sanguinis hominis*. He believes that the remedy is efficient by reason of its sulphur ingredient and its power to prevent the parasite from multiplying in the body; which, according to Dr. Manson, it does with amazing rapidity. It will be remembered, that in accounting for the presence of the filaria in the blood, the theory of Dr. Manson included the novel proposition that the mosquito might carry in the parasite with his proboscis, and deposit it in tissues whence access to the blood could readily be obtained.

A Needle Ten Months in the Larynx.—Vámossy reports the case of a tailor who consulted him in December, 1886, for relief from a needle and thread which he had swallowed while at his work. Examination of the larynx showed a dark body on the edge of the left vocal cord, which was removed by forceps, and proved to be a bit of black thread. The irritation and cough were relieved, and the patient dismissed.

The physician heard nothing from the patient until November, 1887, when he returned, bringing a rusted needle, about one inch long, without an eye, which he had coughed up a few hours before. The reporter considers it probable that the needle had been retained in one of the ventricles of Morgagni.—*Wiener med. Presse*, No. 52, 1887.

Resorcin in Laryngeal Tuberculosis.—Dr. M. A. Fronstein, of Moscow, writing in the *Russkaya Meditsina*, on

resorcin in laryngeal tuberculosis, states that he has found that this substance, though not so powerful a local anæsthetic as cocaine, acts more satisfactorily in allaying the pain and distress caused by laryngeal ulceration of tuberculous origin. In out-patient practice he applies a 10 per cent. solution, and if after a minute or so the pain is not decreased, he repeats the application, using a 20 per cent. solution. He then gives the patient a supply of this latter solution and a brush, and teaches him to apply it himself, the situation of the most painful spot being his guide. As a rule, patients can manage the application pretty well, as the ulceration is usually situated on the arytenoids or on the edge of the epiglottis, localities tolerably easy of access. Where possible, of course, the operation should be performed by a medical man with the aid of the laryngoscope. In addition to these direct applications, a spray containing 2 per cent. of resorcin is used several times a day. Under this treatment considerable improvement was usually manifest, and sometimes, when cocaine was substituted for resorcin, the patient would beg that the first remedy might be given him again, as the change had not suited him. Another advantage resorcin has over cocaine is its comparative cheapness, the price being only about 1*s.* per ounce, whereas the hydrochlorate of cocaine is still 5*s.* a drachm.—*Lancet*, January 7, 1888.

The Doses of the Alkaloids.—At a recent meeting of the Paris Pharmaceutical Society, BENOIT urged that uniform preparations of strophanthin, digitalin, and aconitin be employed, and that the scale of dosage be upon $\frac{1}{5}$th of a milligramme (about $\frac{1}{600}$th of a grain). He proposed the following formulæ:

For digitalin—

Digitalin	gr. ⅙.
Sacchar. lact.	ʒ i.
Acaciæ pulv.	grs. 15.
Syrup. acac.	q. s.

To be made into 100 granules.

Aconitin may be prepared as follows:

Aconitin. nitrat.	gr. ⅜.
Sacchar. lact.	ʒ i.
Gumm. acac.	grs. 15.
Syrup. acac.	q. s.

Which may be made into 100 granules.

It is suggested to color granules of substances especially dangerous.

(The dose of aconitine is different, according to these formulæ, from that of digitalin.)—*Journal de Méd.*, December 25, 1887.

The Prevention of Ophthalmia Neonatorum.—In a Prize Essay, published in the *Manchester Chronicle* for January, 1888, MULES advises the following measures for preventing ophthalmia neonatorum:

(1) Cure of all cases of chronic vaginal discharge before labor by suitable local applications.

(2) Irrigation of the vagina during the second stage of labor when vaginitis is known to exist. The plan, adopted in London, at Queen Charlotte's Hospital, is almost uniformly successful. The solution in use is hydrarg. corros. sublim., 1 part to 2000. Nature has herself indicated this method by copiously secreting a clear vaginal fluid before and during labor, and the rush of liquor amnii immediately preceding birth; the action of these fluids is more than mechanical, for experiment proves that a freely diluted blennorrhœal secretion is non-infectious, although, to be with certainty innocuous, it should not be more than 1 per cent.

(3) By assisting the fœtal eyes to pass beyond the perineal edge without resting. This is easily done by hooking the finger round the perineal edge and drawing it down.

(4) By wiping the eyes with a clean cloth at birth of head.

(5) By instilling an antiseptic solution into the child's eyes at birth, *if the mother is known to have vaginal discharge*. To do this in all cases is unnecessary. Credé's method—solution used, argent. nit. 2 per cent.

(6) To wash the face first, never in the water in which the body has been cleansed.

(7) To retain one sponge or flannel specially for the child's face, and to insist on scrupulous cleanliness.

(8) The nurse to wash her hands after adjusting the mother, before touching the child.

(9) Not to expose unduly the child to bright light, draughts, etc.

(10) To protect the child from flies, with a thin veil.

(11) To remove carefully the child from the immediate vicinity of another similarly attacked. (General isolation.) I cannot too forcibly reiterate that "ophthalmia neonatorum" is an infectious disease, and all medical officers or superintendents of crèches, workhouse schools, or hospitals, should treat it as such, and remove the infected child to an isolation ward at once.

(12) To guard the one eye if the other is affected. (Special isolation.) This is very difficult in infants, and depends entirely on the care and intelligence of the nurse, the constant removal of discharge, and the general watchfulness which cannot be defined.

Creasote in Phthisis.—HOFMANN, in the *Berliner klinische Wochenschrift*, No. 52, 1887, reports that he has prescribed creasote in liquid form, *well diluted*, advising a half or a whole wineglass of water to be taken with the dose. He believes that patients bear the liquid form of administration better than the solid, as less gastric irritation ensues. He has combined creasote, gtt. ¾, with balsam of tolu, in capsules, with advantage.

Penetrating Gunshot Wounds of the Chest.—DR. GOUZIER has published some observations and statistics regarding the penetrating gunshot wounds of the chest occurring in the French expeditions to Formosa and Tonquin in 1883–85. From his work we gather that such wounds showed a mortality of 10 per cent., which is only about a sixth of that due to similar wounds in recent European wars and in the American war. Apparently, as he suggests, the general employment of antiseptic methods was the cause of this great amelioration. Chest wounds from revolver balls of seven millimetres in diameter generally proved comparatively harmless. Traumatic pleurisy and pneumonia usually terminated favorably, but hemorrhage, empyema, and compound fracture of the ribs gave much more serious results. He found that the best practice was not to explore unless it was necessary to extract the ball, and not to attempt extraction unless the ball was just beneath the skin or was setting up dangerous complications. In ordinary cases he found the best plan was

to close the wound antiseptically; but if there was empyema, to make a counter-opening and to wash out and drain the pleural cavity. Warm antiseptic baths were also found very useful in Tonquin.—*Lancet*, January 7, 1888.

The Treatment of Bleeding Hemorrhoids.—BUCHHOLTZ prescribes:

Alum. pulv.	grs. 45.
Ext. rhatan.	grs. 45.
Conserv. rosar.	grs. 90.
Catechu pulv.	grs. 90.
Syrupi	q. s.

M.—Ft. pil. 60 in num.—Sig.

Two pills at night and morning.—*Les Nouveaux Remèdes*, December 24, 1887.

Tribromphenol, an Antiseptic.—In the *Deutsche medicinische Wochenschrift* of December 29, 1887, GRINEM reports his experience with this substance as follows: It is a combination of bromine with phenol, and is a white, crystalline powder, very insoluble in water, easily soluble in alcohol, ether, chloroform, and other similar liquids. It is but little dissolved by glycerine, carbolized solutions, and dilute spirits of wine.

It is dissolved by the intestinal secretions, combines with sulphuric acid, and appears in the urine as a sulphuric compound. It is not escharotic, but powerfully stimulant to granulations; it does not attack the unbroken skin.

It was used in gauze dipped in 2½ per cent. solution, with good results, in tamponing wounds and cavities; it is well adapted as a stimulating tampon for abscess cavities, but should not be used in the pharynx, mouth, or nares.

In experiments upon bacterial cultures a 1 per cent. solution sterilized septic matter in thirty minutes; in 3 to 1000 solution it sterilized gelatine cultures. A small quantity added to urine prevented decomposition. The writer gave this substance in three doses of 1½ grains each, to a patient suffering from tænia, with good results; the whole was given within an hour and a half. Personally, he took as much as 15 grains in twenty-four hours; the only effect being a slightly uncomfortable feeling in the abdomen, and an unpleasant taste.

The use of this substance seems indicated to stimulate granulations; and, by virtue of its insolubility in acids and its solution in alkalies, as an intestinal antiseptic.

Resorcin in Cancer.—The *British Medical Journal*, states that resorcin has been used with excellent results in the treatment of cancerous growths on the face, in the form of an ointment containing equal quantities of resorcin and vaseline. This mixture is applied first; an ointment containing 20 parts of resorcin to 30 parts of vaseline is then applied. The ointment forms eschars on the surface of the growth. These eschars fall off when pure or iodoform vaseline is applied; fleshy granulations subsequently appear, and healthy cicatrization rapidly follows.

Saccharin in Emulsions.—The *American Druggist* for January, 1888, gives the following formulæ for emulsions, with saccharin:

The flavoring and preservation of emulsions ought not to be overlooked. Although an emulsion may be therapeutically and mechanically perfect, it is often nauseating to the taste and offensive in odor. Flavoring, though only an adjunct, still does contribute elements of value to a medicine. The common favorites among flavors are those used in cookery, such as the volatile oils of almond, cinnamon, cassia, cloves, lemon, the essence of vanilla, and orange-flower water. My opinion of these as regards permanency, palatability, and power to disguise is in favor of almonds. An elegant cod-liver oil emulsion is made as follows: (The weights and measures are British.)

Cod-liver oil	4 ounces.
Powdered gum acacia	1 ounce.
Oil of cassia	4 minims.
Oil of almonds (volatile)	4 minims.
Saccharin	2 grains.
Water to make	8 ounces.

Mix the oils with the gum and saccharin in a dry mortar, add 2 oz. of water, stir till the emulsion is formed, finally, add sufficient water to make 8 oz., then mix well.

Castor-oil is well disguised in the following formula:

Castor oil	1 ounce.
Powdered gum acacia	3 drachms.
Oil of almonds (volatile)	2 minims.
Oil of cloves (volatile)	1 minim.
Saccharin	1 grain.
Water to make	4 ounces.

Mix the oils with the gum and saccharin in a dry mortar, add 4 drachms of water at once, stirring till the emulsion is formed, dilute to 4 oz. with water.

Having saccharin at our disposal provides us with a useful substitute for sugar in emulsions. Its advantages are that it adds nothing to the thickness of the product, and cannot give rise to fermentation. The method found most convenient for using saccharin is a 10 per cent. solution made by adding bicarbonate of sodium till effervescence ceases; 20 grains of saccharin take 8 grains of the soda salt.

To keep emulsions for long periods is not desirable; they are best freshly made. Should it be desired to preserve them, recourse must be had to such antiseptics as boric or salicylic acid, or, better, perhaps, a simple tincture of benzoin, or even pure chloroform. The latter is a most powerful antiseptic, imparting an agreeable sweetness; 1 minim may be added to each ounce of emulsion.

Hyoscin may be conveniently administered in

Hyoscin. hydrobrom.	gr. ⅙ to ⅓.
Aq. destill.	ʒ 17½.
Syrup. aurant. cortic.	ʒ 7½.—M.

Sig.—Dose one teaspoonful.

—*Deutsche med. Wochenschrift*, January 5, 1888.

The Care of the First Teeth.—MILLER, of Berlin, writes as follows in the *Therapeutische Monatshefte* for January, 1888:

The influence of the first teeth upon the general health of the child is as great as that of the second teeth.

The care of the first teeth should begin very early, and consists in careful cleansing, the avoidance of injurious substances, and prompt filling of cavities.

Dental operations on children should be carefully estimated in proportion to the strength of the patient, and pain should be as carefully prevented as possible. Affections of the periosteum and bones of the jaws are quite susceptible of treatment in children. The conservative treatment of the first teeth, when once decayed, is more difficult than that of older teeth. Caries of the first teeth has an unfavorable influence on the later teeth; first teeth, when diseased extensively, should be promptly removed. The extraction of the first canines should not be done too rapidly, otherwise the second teeth may be irregularly placed.

Penetrating Wounds of the Stomach and Meso-colon: Laparotomy; Cure.—At a recent meeting of the Surgical Section of the Royal Academy of Ireland, MR. BALL brought forward the case of a boy, aged fifteen, who was admitted into Sir Patrick Dun's Hospital on March 29, 1887, immediately after having accidentally stabbed himself with a half-inch chisel. The blade perforated his abdomen about half way between the tip of the ensiform cartilage and the umbilicus, and about a quarter of an inch to the right side of the linea alba. Dr. Ball saw him four hours after the injury; he was then profoundly collapsed; he vomited blood at frequent intervals, and at each effort to vomit a stream of blood spurted out from the abdominal wound. The whole abdomen was dull on percussion. An incision about three inches long was made in the middle line, between the ensiform cartilage and the umbilicus, and the chisel wound connected with it. As soon as the peritoneum was opened, a considerable quantity of blood gushed out. The stomach was found to be wounded. A clean cut existed in the great curvature, about half an inch in length; it was not bleeding. The mucous membrane, though perforated, was not prolapsed, and none of the contents of the stomach were found extravasated. The wound was sutured by passing a fine catgut suture, after the method of Lembert (but continuous), four times across the wound, only including the serous membrane; the ends were then tightly tied, thus absolutely closing the opening, and at the same time puckering up the serous membrane and bringing a considerable area on each side of the wound into apposition. The omentum was reflected upward and search made for other wounds, as copious bleeding continued. An opening in the transverse meso-colon, near its spinal attachment, could be felt with the finger; and, upon sponging away the blood, it was found that a large vein was wounded, to which, with some little difficulty, a catgut ligature was applied. The patient vomited shortly after the operation, but the vomit was free from blood. He was allowed nothing by the mouth, except small pieces of ice, for six days, and was fed by nutrient enemata of artificially digested food. From the sixth to the fourteenth day, he was allowed gradually increasing quantities of beef-tea and milk, and he then was allowed solid food. On the third day, he vomited some pieces of onion, quite unchanged, which, he stated, he had eaten the morning of the accident. Four weeks after the operation, he was discharged from the hospital quite well.—*British Medical Journal*, January 14, 1888.

Strychnia in Alcoholism. — The good results obtained from strychnine in dipsomania by N. M. Popoff, V. A. Manasseïn, Partzevsky, Tolvinsky, and Zavadsky, have induced DR. S. JAROSHEVSKY (*Meditzinskoïe Obozremiè*, No. 4, 1887, p. 332) to undertake an experimental inquiry into the antagonism between the alkaloid and alcohol. From experiments made on dogs Dr. Jaroshevsky feels justified in drawing the following conclusions: 1. Strychnine undoubtedly neutralizes the intoxicating and narcotic effects of alcohol. 2. It enables large quantities of alcohol to be taken for a considerable stretch of time without causing the usual organic lesions which follow the use of alcohol alone. 3. There are, however, limits beyond which the alkaloid itself becomes injurious to the organism. 4. Therapeutically, strychnine should be used in all forms of alcoholism. 5. It may be regarded as a powerful prophylactic against alcoholism.—*British Medical Journal*, January 14, 1888.

The Administration of Sparteine.—DEBIERRE prescribes sparteine as follows:

Aquæ	℥ 11¼.
Aquæ lauro-cerasi	℥ 3¾.
Syrup. simpl.	℥ 5.
Spartein. sulph.	grs. 4½.

A teaspoonful morning and night.

In pill form sparteine may be given in

Spartein. sulph.	grs. 8.
Mass. pilul.	q. s.

M.—Ft. pil. 10 in number.

Two to four pills may be given during twenty-four hours.—*Les Nouveaux Remèdes*, December 24, 1887.

Permanent Catheterization and Forced Feeding in Œsophageal Stricture.—At a recent meeting of the Berlin Medical Society LEYDEN exhibited two patients whom he had nourished by introducing a canula as large as a goose quill into an œsophagus contracted by cancer, through which forced feeding was carried on. Attached to the canulæ were threads of silk, which were fastened over the ears, and prevented the canula from going into the stomach.—*Therapeutische Monatshefte*, January, 1888.

The Prophylaxis of Diphtheria.—JOHANNSEN, of Libau, has used with excellent results a clear, red solution of potassium permanganate as a gargle. Believing that bacteria taken into the throat during the day are very likely to multiply during the night the gargle is used before retiring. He is convinced that the procedure is rational and efficient.—*St. Petersburg Med. Wochenschrift*, No. 37, 1887.

The Antiseptic Action of Biniodide of Mercury and Potassium Iodide.—KRASSOWSKI, of St. Petersburg, reports a series of eleven laparotomies in which he used as an antiseptic equal parts of biniodide of mercury and potassium iodide in solution. Two deaths occurred, from causes not connected with the operation; in each case post-mortem examination showed union of the wound by first intention, and absence of septic inflammation. The mercurial was first used in a strength of 1 to 1000, which was progressively diminished to 1 to 4000.

Krassowski concludes that a solution of 1 to 4000 is an efficient antiseptic, and that this substance is less irritant than the bichloride, and can be applied to the integument in five per cent. solution, without producing irritation.—*Gazette de Gynécologie*, January 1, 1888.

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SATURDAY, FEBRUARY 4, 1888.

HIGH RECTECTOMY FOR CARCINOMA.

When carcinoma of the rectum is seated too high to be reached from below by the ordinary procedure, and too deep to be excised through the belly, the operation of Kraske, of Freiburg, described in the *Verhandlungen der Deutschen Gesellschaft für Chirurgie*, Bd. ii. 1855, affords the quickest and safest measure to expose and remove it, along with the perirectal tissues, should they be implicated through local extension of the disease.

The procedure, it will be remembered, consists, briefly, in making a median cut from the second sacral vertebra to the anus; severing the left gluteus maximus muscle from its attachment to the sacrum; excising the coccyx; detaching the sacral connections of the tuberososacral and spinososacral ligaments; and chiselling away the lateral mass of the sacrum in a curved line, which begins at the outer border of the third sacral foramen, and terminates at the cornu of the sacrum. The anus being now freed by a circular incision, the rectum is detached from its bed; the peritoneal cavity is opened, also, by a circular cut; the gut drawn well down and amputated above the tumor, and its end fixed by sutures to the paraänal tissues. The operation is completed by inserting a drainage tube into the peritoneal cavity, and plugging the rectum and wound with iodoform gauze.

In his first case, the disease recurred at the expiration of four months. In 7 subsequent cases in the hands of Kraske, in 3 from the practice of Schönborn, in 1 from that of Rinne, and in 1 from that of Lauenstein, the anus and lower portion of the rectum were spared, and about two-thirds of the anterior wall of the central end of the gut were united by sutures to the peripheral end, the posterior segment of the tube being left open for the escape of the feces. Of these 12 cases, 5 died, 2 of exhaustion, 1 of sepsis, 1 of peritonitis from giving way of the stitches and the entrance of fecal matter into the cavity of the belly, and 1 of iodoform intoxication. Of the 7 recoveries, 3 had fistulous openings at the expiration, respectively, of three, three and a half, and five months; in 2 the healing process was not completed until the end, respectively, of six and eleven months, from the formation of a sacral artificial anus; and 2 were recorded at the end, respectively, of one month and three months. Hence of the entire number, 38 per cent. perished, and, so far as we are aware, not a single one was permanently cured.

Although the operation of Kraske is better than the old procedure, it is open to the serious objections that the peritoneal cavity is not closed, and that the contact of fecal matter with the wound prolongs the healing process, and favors septic complications and the formation of a sacral artificial anus.

To overcome these disadvantages, Schede, in a paper read last September before the Medical Society of Hamburg, and published in the *Deutsche medicinische Wochenschrift*, No. 48, 1887, describes three cases in which, after doing the preliminary steps instituted by Kraske, he introduced certain modifications. In the first case, he attached the divided peritoneum to the serous surface of the sigmoid flexure of the colon, thereby closing the cavity of the belly, and left the anus, sphincters, and lower end of the gut intact, and secured it to the central end with two circular rows of sutures, of which the first included the mucous membrane, and the second the other coats of the bowel. The wound was dressed with iodoform gauze, and opium administered to control the stools. The result was not wholly satisfactory; the ends of the gut did not entirely unite by primary intention, and nearly a year elapsed before the complete closure of the small fistulous track. The sphincters retained their functions, however, and there was no difficulty from involuntary evacuations.

The great value of closing the peritoneal cavity is shown by two cases recorded by Kraske, in which

that feature of the operation was omitted, although complete reunion of the divided ends of the bowel was attempted. In both instances the stitches gave way, during a stool, which occurred a few hours after the operation, despite previous care to empty thoroughly the lower bowel, and the subsequent exhibition of opium, and death ensued from peritonitis from fecal extravasation.

The protracted healing in the case of Schede was due to contact of feces with the sutured bowel. Hence, in the other two operations, to obviate this complication, immediately after resecting the rectum, he made an artificial anus between the belly and descending colon. In the first of these, four-fifths of the rectal wound united by the first intention, and the remainder by granulation, while the outer wound had closed in two months and a half. The artificial opening was then remedied, and at the end of four months from the primary operation the patient was discharged. The second of these cases pursued a very similar course.

The modifications practised by Schede are certainly very great additions to the original procedure. Considered together, the two operations have been performed at least 18 times, with 7 deaths, which is a high rate of mortality, and only a slightly better showing than the ordinary operation for high carcinoma affords. Thus, of 10 cases of Bardenheuer's procedure in the hands of Kümmell, 2 died shortly after the operation, 2 died of sepsis, and the disease recurred in the remainder at intervals which ranged between five and twenty-four months. Bardenheuer's method, it may be stated, consists in removing the anus, sphincter, bowel, and tumor, opening the peritoneal sac, and drawing down the divided gut, and attaching it to the perianal tissues.

It will be observed that the operation of Kraske, or its modifications, has been done solely by German surgeons, so that we infer that excision of high carcinoma of the rectum is not regarded favorably by the profession at large. If this be true, we think that the attitude assumed by surgeons of other parts of the world is most commendable, and that they should not practise the operation until their bolder confrères show that it affords a fair percentage of permanent recoveries. Until this be done, we have no hesitation in saying that the best procedure in this class of cases is left lumbar colotomy as modified by Madelung, of Rostock. The colon having been divided, its central end is united to the lumbar wound, and its lower end is dropped, after closure of its lumen. By thus preventing the contact of fecal matter with the growth, discomfort and pain are effectually checked though the withdrawal of the source of mechanical, chemical, and septic irritation.

IDIOPATHIC DROPSY.

ANY physician in large practice has probably seen cases of dropsy in which it has been impossible to assign a satisfactory cause for the effusion, in the absence of heart, renal, or blood disease. The older writers had a good deal to say about this essential dropsy, but naturally with the increased facilities for diagnosis the number of cases has been reduced to a minimum, and so little regard has been of late paid to it, that even the name does not appear in the ordinary nomenclatures of disease.

In the last number of the *Deutsches Archiv für klin. Medicin*, WAGNER, the well-known Leipsic pathologist and clinician, has an exceedingly suggestive article, giving his experience with this form of dropsy, which in its distribution and general appearances resembles most closely that of renal disease. He gives first a report of six cases in children, in all of whom the dropsy was general, most intense, as a rule, in the legs, and not of great extent in the serous sacs. In all there was pallor, but not anæmia of such a grade as could possibly induce the general œdema. There was no fever, but the cases gave the impression of a serious illness, and three of the six children died. The most careful examination failed to reveal any heart, kidney, or serious blood changes, and in the three fatal cases the anatomical condition threw no light on the cause of the dropsy.

Two cases are mentioned in young bakers, apprentices at the age of fifteen, much exposed to changes in temperature; five cases in adults are referred to, all following cold, and two cases are given in full. With the exception of the last case, none of these presented any of the changes usually associated with anasarca. Case VII. we should certainly not class with the others, as it seems an instance of œdema from anæmia. The patient, a girl aged seventeen, had great pallor, with slight swelling of the upper part of the body and face, and considerable œdema of the legs. The hæmoglobin, estimated with Fleischl's apparatus, was only ten per cent. The œdema disappeared rapidly, and with iron the hæmoglobin rose, in two months, to normal. Surely we have here a not uncommon illustration of the œdema associated with an impoverished blood,

and of which we see marked instances in chlorosis, and in the anæmia of cancer. So striking may the dropsy be in the former disease, that we have known cases treated for months as instances of Bright's disease.

The etiology of this essential dropsy is as yet unknown, a majority of the cases occur after severe exposure and cold, and some of the cases doubtless come in the category of the *anasarque rheumatique* of the French. Many instances have followed the infectious diseases, and it is well to remember that there may be, as Quincke has shown, anasarca after scarlet fever without albuminuria. The three post-mortems in Wagner's cases gave no clew to the pathology of the disorder. A neurotic theory has usually been called in to explain the phenomenon, but we have no satisfactory evidence how œdema can be produced by disturbed vaso-motor action. On Cohnheim's view we must suppose some widespread alteration in the vessel walls, but in what way brought about, whether through nervous influence or by the direct action of such an agent as cold, it it impossible, in the present state of our knowledge, to say. The condition has not only a great theoretical interest, but also a very practical aspect as the cases would appear to be not uncommon, and must be separated carefully from those of renal, cardiac, and hæmic origin. Fortunately, as Wagner shows, the disease in adults is very rarely fatal.

CLEAN HANDS.

At the present day the medical idea of cleanness is freedom from germs. The difficulty of realizing such a state lies in the carelessness engendered by superficial observation, which leads one to look on infection by the hand as very rare, and in the too minute requirements of those who desire to achieve the impossible. The subject of bacterioscopically clean hands has been carefully considered by Kümmell, Gärtner, and Förster, but the latest and most complete, as well as the most practical contribution is by Fürbringer (*Untersuchungen und Vorschriften über Desinfection der Hände des Arztes*, etc., Wiesbaden, 1888). Those who dwell in the Happy Valleys of "Asepticism" will find in his article nothing worth reading; but others, and especially those led by the exigencies of practice, or the struggle for existence, from the autopsy to the puerperal chamber, or from the not eminently aseptic rectum, or vagina to the casual laparotomy, may find it profitable.

Fürbringer was guided in his researches by a knowledge of the fact that the "subungual space," or that included between the free end of the nail and the finger pulp, is the most difficult part of the hand to clean. Even when incapable of infecting the usual artificial culture-media, this space can harbor germs which in the warm fluids of wound surfaces, or the peritoneal cavity may, in the act of operating or touching, be washed out. He therefore endeavored to ascertain how to sterilize perfectly the subungual space. Experiments showed that the disinfectant action of carbolic acid, or sublimate solution did not depend on the strength of the liquid alone, but that the most essential thing of all was a preparation of the skin and the nail. Actual contact of the germicide with the skin does not take place when the latter is dry, and as the result of many experiments Fürbringer added alcohol to the toilet of the hands. His whole method, which is said to give almost ideal results, is as follows: 1. The nails are mechanically cleaned of all visible dirt. 2. The hands, especially the nails, are scrubbed with warm soap and water, by means of the brush. 3. The hands are immersed for one minute in alcohol (at least 80 per cent.), and while still wet, 4. Plunged into 2 per cent. bichloride, or 3 per cent. carbolic acid solution, and kept in it one minute.

The advantages of this method are: Security of disinfection, sparing of the hands, and economy with use of sublimate, which Fürbringer prefers to carbolic acid. The amount and form of the bichloride solution were matters of careful and exact experiments. We may add that this method is now used in von Bergmann's clinic, already famous for its admirable antisepsis.

CHRONIC POISONING BY COFFEE.

Many of the medical profession for years have been called upon to treat a large class of half-starved women, chiefly poor seamstresses, who are accustomed to carry on the most severe toil with scarcely any other food than crackers and tea. As a consequence of this lack of nourishment, the tea simply aids the woman in using up not only the vital force of daily life but also the reserve powers, which for the maintenance of health must always be present.

Symptoms, therefore, arise in these cases dependent upon two causes: the first of which is exhaustion, the second teaism. It would seem to be doubtful whether the tea itself is ever purely the

cause of the ailments frequently ascribed to it, since it is the very condition of exhaustion which enables the beverage to affect, to any great extent, the general system, save in those cases where enormous amounts are ingested.

We desire now to call attention to an analogous condition produced by coffee, and to which GUELLIOT, of Reims, in the *Revue générale de Clin. et de Thérapeutique* of December 15, 1887, gives the name of coffeeism. Curiously enough, coffeeism would seem to be present rather in the well-to-do and well-fed class than in the class affected by teaism, yet it is evident on comparing the symptoms noted by Guelliot, with those reported some time since by Bullard, that little difference exists between them.

Chief among the disorders produced by coffee we find anorexia, and this symptom also led the list of Bullard. Sleeplessness and nervous tremblings stand next in frequency of occurrence, while a long train of disorders arising from disturbed nutrition and assimilation follow in various forms. In the treatment of this condition, the first object of the physician is, of course, to prevent the ingestion of any more coffee if possible, or at least to limit its use. Further than this the symptoms must be treated as they arise, general hygienic measures must be insisted upon, and, as a general rule, owing to the class of persons suffering from this disorder, exercise is indicated rather than the "rest-cure," as is so frequently necessary in "teaism." Where the sufferer has used coffee with the object of aiding him to carry on some nerve or cerebral strain, this indication is, of course, reversed; but in the fat and heavy gourmand whose emunctories are clogged, whose digestion is disordered, and whose general system is reeking with the results of imperfect elimination of tissue waste, the reduction of the amount of coffee, and plain living with exercise are the chief measures by which to obtain relief.

Notwithstanding the researches of the chemist which prove that caffeine and theine are identical, it must not be forgotten that along with the caffeine in a cup of coffee one takes into the system some of the empyreumatic oil belonging to the bean, the general influence of which is at present unknown, save that it is possessed of sufficient power to influence the system very markedly.

REVIEWS.

DOCTOR AND PATIENT. By S. WEIR MITCHELL, M.D., LL.D. Harv., etc. 12mo. pp. 177. Philadelphia: J. B. Lippincott Company, 1888.

IN a half-dozen essays the author embodies the salient features in the relationship of doctor and patient, among that peculiarly challenging class of invalids, nervous women; with whom he has had so much to do.

His avowal that he was tempted to call these essays lay sermons reminds us of the remark made by a gifted and suffering woman, "The physician is the priest of the 19th century, and is far more the father confessor of women than the clergyman." Retaining the metaphor our author first lays aside the formal robes of his office, and in simple garb discusses the physicians of two centuries ago, and finds in their wisdom the same saving leaven of physiological good sense which leavens the best knowledge of to-day. He tells us not only what the good physician was, but what, in the light of modern accuracy, he should be, and urges the high ideal of the most thorough discharge of duty, the exercise of the most discriminating sympathy, and liberality of culture upon us.

Then, "from grave to gay," he recalls the pleasures of convalescence, and so brightens anew the brightest link in the bond of physician and patient. But, recollecting his office, he becomes again the priest of suffering, and turns upon the manysided problem of pain, the clear light of extensive and careful observation. He does not forget children, and would treat, not only material but mental disease in them by securing above all the moral coöperation of parents and caretakers.

Certainly none can speak more knowingly than he of nervousness and its influence on character, and *ex cathedra* the duty of self-control and patience in suffering is strongly urged. It is interesting to know the author's view, that, regarding the differences between men and women, for him, "the grave significance of sexual difference controls the whole question;" a significant commentary upon some methods of educating women in vogue at present. And last, to complete a cure, the services of that old and tried nurse of the human race, Dame Nature, are invoked, and life for women, in tents and cabins, is sketched so happily that they can hardly resist the invitation.

There is no one more commonly discussed than the doctor, and few, indeed, are they who are not at some time patients; and for the profit and pleasure of both these essays will prove most suggestive.

THE RECTUM AND ANUS. By CHARLES B. BALL, M. Ch. Univ. Dublin, F.R.C.S.I., Surgeon to Sir Patrick Dun's Hospital, etc. 16mo. pp. viii. 410. Philadelphia: Lea Brothers & Co.

A CAPITAL book in a capital series of clinical manuals. Thoroughly practical, it is both comprehensive and condensed, and the possessor of it will find but little use for any more extended work upon the subject of which it treats. Based upon a large personal experience as the book evidently is, its author has been as well a diligent student of the writings of other observers, and he presents with fairness and sufficient fulness the views of those who have the right to be regarded as authorities.

Nor is there the least sign of national prejudice or insular narrowness, but in the spirit befitting the subject of an empire encircling the globe Mr. Ball quotes freely from American, German, and French authors. The result is that the reader feels that he has in his hand a book that he can trust to contain all and the most recent information that is worth having. Indeed, upon a careful examination we find no omissions of any consequence, and are impressed by the combination of minute detail, and terse condensation which marks the book. Such a combination is attainable only by one who is thoroughly master of his subject, and it inspires the reader with full confidence in the fitness of the author to direct and guide. This confidence is not misplaced, as Mr. Ball is not only a full man, but a most sound surgeon.

Calm and judicial in the estimates he places upon differing modes of treatment, Mr. Ball gives his own views with candor and clearness, and these views will be found to commend themselves very generally to practical surgeons of experience. In fine, we have utterly failed to convey our meaning if the reader does not perceive that we hold this book in high estimation, and we would freely commend it as a very good book on a most important topic. Adding that the illustrations are good, sufficiently numerous, and really illustrate the text, we end by saying, buy it, read it, and differ from it most cautiously.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, January 19, 1888.

THE PRESIDENT, A. JACOBI, M.D., IN THE CHAIR.

DR. T. R. POOLEY read a paper on

THE INDUCTION OF PREMATURE LABOR IN AMAUROSIS AND AMBLYOPIA FROM ALBUMINURIA IN PREGNANCY.

He said that disorders of vision associated with pregnancy have not received the attention which, from their importance, they deserve. Such disorders are more apt to occur in the later months of utero-gestation, and the sight is sometimes permanently lost. Vision may be affected in two ways. *First*, a sudden amaurosis, and, *second*, a gradual impairment, but not complete loss of sight. Like kidney disease, these disorders of vision in pregnancy have been long known, but not until recently has it been preferred to induce premature delivery for sight alone. As to the propriety of this procedure and the indications for its adoption, these can best be settled on scientific grounds by the coöperation of both obstetricians and ophthalmologists.

The honor of first proposing the induction of premature labor in these cases belonged to Dr. Edward G. Loring, of New York, who, in 1883, published the history of a case in which labor was prematurely induced for atrophy of the optic nerve depending apparently on rapidly recurring pregnancies. The patient was thirty-five years of age at the time, and one eye was already blind. Fearing the loss of the other eye, he proposed the operation. In this case the usual symptoms of albuminuria were entirely absent; but Dr. Pooley thought it possible that the disease of the eye was really dependent on uræmia, as there was no reason why optic neuritis should not occur from obscure disease of the kidney.

Having referred to cases reported by Lee and Eastlake, of England; Holmes, of Chicago; and O. W. Moore, Arango, and Callan, of New York, and himself, he went on to say that if the patient was allowed to go to full term, permanent blindness, or serious impairment of vision might occur; while, if premature labor were induced, or took place spontaneously, improvement always followed, and in some instances the sight was entirely restored. In many cases of the neuro-retinitis of Bright's disease, it seemed as though nature attempted to relieve the patient by bringing on premature labor; but where this did not take place spontaneously, the artificial induction of labor was justifiable, and even demanded.

Having quoted Dr. Loring on the medico-legal aspects of the operation, Dr. Pooley gave his conclusions as follows:

First. In all cases of pregnancy, not only should examinations of the urine be systematically made, but the eyes should be examined with the ophthalmoscope; since, in a large proportion of cases, where eye troubles exist, the patients make no complaint of disorders of vision. Frequently such troubles can be detected with the ophthalmoscope long before any disease of the kidney is shown in the urine.

Second. In uræmic amaurosis, without changes in the eye visible to the ophthalmoscope, even should the usual accompanying symptoms, such as dizziness, nausea, and threatened convulsions, be absent, their supervention is soon to be anticipated, and the immediate induction of premature labor is indicated, without waiting until the life, as well as the sight of the patient is in danger.

Third. In neuro-retinitis the induction of premature labor is not only justifiable, but urgently demanded. In some instances it is called for even in the earlier months of pregnancy.

Fourth. It is required in cases of eye trouble recurring in successive pregnancies, like Loring's.

Fifth. A woman having once suffered in this way during pregnancy, the relationship of cause and effect should be fully explained, both to herself and her husband.

DR. EDWARD G. LORING spoke of the necessity of early ophthalmoscopic examinations in all cases of pregnancy, and said that it is a very simple thing, which every practitioner could readily become familiar with, to detect the retinitis of Bright's disease. Statistics show the very great frequency with which the retina is affected in pregnancy, and it is important that the trouble should be promptly recognized. This inflammation may begin very early in pregnancy, while disease of the nerve may not occur until many months after the labor. He then spoke of a very peculiar condition not associated with *retinitis albuminuria*, which originates not from pregnancy, but from uterine disturbances. Thus, a girl of eighteen was found to be losing the sight of one eye, and an examination revealed atrophy of the optic nerve on that side. As she was suffering from amenorrhœa, every effort was made to restore the menses, and the measures adopted proved successful. One year later the other eye became affected, and on examination now showed nearly complete atrophy of the optic nerve on one side, with retino-neuritis on the other. The menses, which had again ceased, were once more restored, and afterward

she was married, and had a child. After she had been nursing the infant for about three months, she began to have trouble again in the sound eye. She was advised to wean the child at once, and when she had done so the menses came on. She is now pregnant again.

DR. BARUCH said that he was in accord with Drs. Pooley and Loring in regard to the propriety of inducing premature labor in the class of cases referred to. Life is as much in danger as the sight, and, therefore, he thought the necessity for it is plain. The disorder of vision is a danger-signal which warns the practitioner not to neglect even small symptoms. If amaurosis or amblyopia is present, the condition depends on nephritis, and there are, therefore, many reasons why the pregnancy should be prematurely terminated.

DR. MURRAY thought that all the deductions of the paper were hardly justified by the facts of the case, so far as known, since a very small proportion even of those who suffer from eclampsia become blind. It seemed to him unnecessary to subject all pregnant women, whether they complained of any disorder of vision or not, to the inconvenience of an ophthalmoscopic examination.

DR. GEORGE T. HARRISON said that the paper seemed to show the close relations that exist between different specialties in medicine, and that he had been convinced by it that obstetricians should pay more attention to the vision in pregnant women. In practice it is important to make a distinction between *nephritis gravidarum* and *nephritis in gravitate;* the first being a form of disease in which the anatomical and functional disturbances of the kidneys are evolved by the state of pregnancy, while the latter is an interstitial or parenchymatous nephritis, which either existed prior to conception or has been produced by causes other than pregnancy during the course of the gestation, and in which abortion or premature labor is apt to occur spontaneously. It was evident from what we had heard this evening that the ophthalmologist is able to throw considerable light on this subject.

DR. POOLEY in closing the discussion said he had already written a paper on the subject of eye-disease dependent on uterine disturbances, alluded to by Dr. Loring, in which he had reported some cases observed by himself, and that he had, therefore, not referred to that subject in his present paper.

SECTION ON PEDIATRICS.

First Scientific Meeting, January 25, 1888.

J. LEWIS SMITH, M.D., CHAIRMAN.

DR. A. CAILLÉ presented a

CASE OF GENERAL MUSCULAR CONTRACTURE

in an infant six weeks old which had been seen by him for the first time that afternoon, and said that it seemed to him that the condition present was probably due to an arrest of development *in utero*. The parents were both healthy, and this was their third child; the other two children being strong and well-developed in every way. As far as could be ascertained there was no syphilitic or other taint in the infant, which was born at full term. The head was large with a decided flattening on one side of the cranium, but the rest of the body was small and shrunken in appearance. The jaw, which was turned somewhat to one side, could be opened to only a very limited extent, and there was contracture of the muscles of both the upper and the lower extremities.

DR. A. JACOBI, after an examination of the infant, which was exhibited to the Section, said that he could not see any evidence of arrest of development, and that the condition present appeared to him to be the result of a meningo-encephalitis occurring during fœtal life. The contracture of the jaw somewhat resembled that seen in incipient trismus, although the spasm was not so marked as in that condition. The appearance of the cranium was very much like that seen in cranio-tabes in children a year or more old. He thought that it was doubtful whether galvano-electric treatment would be of much service in such a case, and that an unfavorable prognosis must be pronounced, although a certain proportion of children presenting the condition noted in this infant, which was undoubtedly very rare, recovered.

THE CHAIRMAN exhibited a

CASE OF INFANTILE PARALYSIS

which he believed to be due to polio-encephalitis. The child was two years old, and had always been perfectly healthy, with the exception of an attack of diarrhœa, up to May last, when, at the age of sixteen months, while apparently perfectly well, it was seized with violent convulsions, which lasted from 6 P. M. to 9 A. M., and were accompanied with considerable febrile movement. After the stupor commonly following severe eclampsia had passed away it was found that the child had complete paralysis of the muscles on the left side, including the facial muscles on the same side. The recovery from the facial paralysis was complete and had taken place rapidly, while there had been a gradual improvement as regards the muscles of the upper and lower extremities. At the present time the child is able to walk, though partly dragging the left leg, while there is still a spastic condition of the toes of the left foot.

DR. SMITH said he was of the opinion that some of the cases resembling this, which had been reported as due to cerebral inflammation, were in reality instances of cerebro-spinal meningitis. Since 1871 epidemic cerebro-spinal meningitis had obtained a permanent foot-hold in New York and children were constantly liable, therefore, to be attacked with this disease. In the present case, however, the patient resided on Long Island, and, consequently, not being subject to influences giving rise to cerebro-spinal meningitis, he thought the latter might be excluded here. It was thus evident that the condition must have had a local cause, and, judging from the history of the case and the symptoms described, particularly the fever accompanying the sudden attack of eclampsia, he was inclined to the opinion that it was one of infantile cerebral paralysis or polio-encephalitis, as described by Strümpell. One of the characteristics of this affection pointed out by the author named was that tendon reflex not only remained, but was exaggerated, and this was found to be exaggerated in the present instance.

DR. B. SACHS said that it seemed to him that simple meningeal hemorrhage would offer a more satisfactory explanation of the phenomena noted in this case than polio-encephalitis. As a result of the latter condition there almost always followed more or less mental impairment, while after meningeal hemorrhage the condi-

tion of the mind remained unaffected, as was the case in this instance. Still, it was by no means certain what the exact diagnosis was here, and he thought that it would be impossible to arrive at any definite conclusion until a study of the electrical reactions of the case had been made.

The Chairman stated that it was the marked febrile movement described as accompanying the eclampsia, which had principally led him to decide in favor of polioencephalitis.

Dr. Francis P. Kinnicutt said that he believed that many cases like this were due to embolism. Abercrombie, in reporting a number of cases of infantile paralysis, recently, in one of the English medical journals, had expressed the opinion that a certain proportion of them depended on embolism; and Goodhart, while acknowledging other sources of origin in many instances, also ascribed some of the cases to this cause. It seemed to him, therefore, that the possibility of embolism should always be taken into consideration, and particularly when children are in an asthenic condition, as after attacks of the exanthemata.

Dr. Jacobi said that in asthenia from the eruptive fevers we should expect thrombosis rather than embolism. If there were heart disease, or even a broncho-pneumonia, we might believe then an embolus was the cause of the paralysis, but otherwise he thought this was to be excluded. Thrombosis, however, is a very common result after exhaustive diseases. As to the advantage of studying the electric reactions of the present case, he hardly thought that much light would be thrown on it by such an investigation.

Dr. Kinnicutt said that he should have explained that in embolism occurring in the asthenic conditions referred to, he should attribute the embolism to thrombosis occurring in some distant part.

The Chairman said that in this case thrombosis and embolism could be excluded on account of the previous good health of the child.

Dr. Landon Carter Gray, of Brooklyn, said that the exact diagnosis of hemiplegia in children is environed by much obscurity. Personally he was very doubtful whether the condition described by Strümpell occurred very often, and he believed that the statements which he made were founded, to a large extent, merely on speculation. The most that we could say was, that in children the site of the trouble is apt to be in the cortex of the brain, and usually in the motor region. It is generally impossible to make a differential diagnosis, and at autopsies he had more than once congratulated himself that he had not attempted to decide between encephalitis and meningitis during life. The whole matter is entirely uncertain, and in the present state of our knowledge, on account of the great liability to make mistakes, he thought it more scientific not to venture upon a precise diagnosis in such cases. From a practical point of view it makes very little difference what is the exact condition present.

Dr. A. Seibert then read a paper entitled

A CONTRIBUTION TO THE STUDY OF CEREBRAL PARALYSIS IN INFANCY.

After a brief introduction, he said that in 1885 he was called upon to examine an infant two and a half months old. It was the seventh child of its mother, all the others having been healthy children, and there was no evidence of syphilitic or tubercular trouble. The mother stated that during her pregnancy, when she was carrying this child, she scarcely ever felt life, and that when the infant was born it was asphyxiated, and had the cord tightly wrapped twice around its neck. It was very different from her other children at the time of birth, being small and flabby, and for two months it never stirred or cried. When two and a half months old it had an attack of capillary bronchitis, and it was at this time that it first came under Dr. Seibert's notice.

At the age of ten months it was still in practically the same feeble condition. It lay quietly on its back, the skin was wrinkled, and the respiration was noted to be for the most part diaphragmatic. There was no evidence of cranio-tabes. The pupils were narrow and equally dilated, and the constant expression on the child's face was that of a dreamy, vacant stare. When the body was raised to an upright position the head would fall to that side on which there was the greatest incline. The intercostal spaces were very narrow, the intercostal muscles took but little part in the act of breathing, and there was a deep furrow in the region of the diaphragm. The muscles of the neck were but mere strings, and there was in general an almost complete absence of muscular power. The infant never had any convulsions.

From the phenomena thus presented it was evident that there was an atrophied condition of the brain, and Dr. Seibert endeavored to find out the cause of this. Meningitis was at once dismissed, as this condition had existed from birth; for if it had been due to meningitis this must have occurred during fœtal life, and, so far as he was aware, this was something which had never been noted. Neither did he think that the trouble was due to hemorrhage. The child was small, flabby, and atrophic when born. All the symptoms denoted an atrophic condition of the whole body, including the brain, at the time of birth and after birth. The muscles of the neck were more completely atrophied than any others, and in this connection it was significant that the infant had been born with the cord wound twice around the neck.

In this constriction of the neck by the cord, it seemed to him, was to be found the solution of the case. By means of this the blood supply of the head and brain had been to a great extent cut off, and this would abundantly account for the cerebral atrophy and the general lack of nutrition in the child's body. At the time of birth the bloodvessels of the head, which had long been comparatively empty from the pressure of the cord around the neck, suddenly became filled when this was removed, and hence the aphyxia noted.

At fourteen months of age the child died from another attack of capillary bronchitis, and when the brain was examined after death it was found that the layer of white matter was very thin, and the diagnosis of cerebral atrophy was fully confirmed. In the course of his experience he had met with four cases altogether in which there was a congenital atrophic condition of the brain, but only in this instance had he been able to secure a full clinical history and verify the diagnosis by autopsy.

The second form, he said, is more common than the first, and of this he gave a detailed description of two cases. In one of these a post-mortem examination was made, but not in the other. In this second class of cases the symptoms are similar in character to those met

with in the first; but here they are brought about by pathological changes; viz., meningitis with exudation, arachnoid thickening, and sometimes moderate hydrocephalus. The results of the meningitis cause atrophy of the brain. The symptoms of defective innervation always remains the same whether the cerebral atrophy is congenital or is the result of subsequent meningitis.

The third class of cases mentioned is characterized by incessant crying and moaning, with muscular contractures and sometimes permanent opisthotonos, though there are no general convulsions. The condition is due to chronic meningitis, steadily increasing, and causing abundant exudation over the cortex, but running its course without febrile movement. He related two cases of this kind, occurring in a brother and sister, and in one of them the diagnosis was confirmed by autopsy. After lasting for several months the affection terminated in heart failure, the temperature in one case falling at the time of death to 96° F., and in the other to 94°. In the case in which the post-mortem was held there were no tubercles or tubercle bacilli present.

In conclusion, Dr. Seibert said that in these three classes of cerebral paralysis of infancy the clinical manifestations were all due to atrophy of the brain, although in the first the original cause of trouble was insufficient blood supply, in the second, acute meningitis, and in the third, chronic meningitis.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, January 11, 1888.

The President, J. Solis-Cohen, M.D., in the Chair.

Dr. Charles K. Mills read a paper on

THE TREATMENT OF NERVOUS AND MENTAL DISEASE BY SYSTEMATIZED ACTIVE EXERCISES.

Exercises or movements for medical purposes—medical gymnastics, in other words—have been divided and subdivided to an absurd degree by Ling and his followers. Schreiber gives an example of a German term for what is called the quarternary combination of the standing position, which term contains forty-five letters and nine different words, although it is written in German as a single word. The division, however, into such movements or exercises as passive, duplicated active, and active, is rational and useful.

It was of systematized active exercises, that Dr. Mills more particularly wished to speak. The expression single active movement indicates that the movement is performed by a single individual without direct assistance, although it may be done under the orders of a physician or master. Exercise of this kind may be performed either with or without apparatus, and even when the latter is used it need not necessarily be expensive.

Dr. Mills next briefly reviewed the literature of medical gymnastics, and described various forms of pulley-weights and other apparatus. He made use largely of the forms of respiratory exercises described by Blaikie on *Sound Bodies for Our Boys and Girls*, sometimes without and sometimes with apparatus.

The treatment should begin with the simplest forms of exercise, and these should be constantly increased and elaborated, as the patients gain in skill and strength. It is wonderful how little some patients can do in this direction. A grasshopper in gymnastics is a burden to them. Five minutes or even less, is sometimes all the time that can be safely taken at first, and five minutes of actual exercise must sometimes be distributed over half an hour. In most cases the time should never be allowed to exceed twenty to thirty minutes. Often it is important to give resting spells during the process of treatment. Some patients, ambitious to excel or fearing to appear weak, will certainly overdo. Individual peculiarities should be carefully studied. In the majority of cases of nervous and mental diseases in which systematized active exercises are indicated, the danger will be greater of overdoing than of doing too little.

The paper was not founded simply upon theoretical considerations and a study of literature. For several years Dr. Mills had, to some extent, used systematized active exercises, either with or without apparatus, and during a year past he had had a considerable number of patients on this treatment. His objects, in addition to recording experience, were to call general attention to a too much neglected method of treatment, and to make certain practical suggestions which naturally grew out of a study of the subject. When preparing this paper he was able to put his hands on forty-four such cases, not including those under treatment at the Philadelphia Hospital. Of these cases, twenty-five were treated by the general active exercises, some with and some without pulley-weight apparatus; the other nineteen by some local method for a special purpose. The patients treated by the general exercises included cases of idiocy, insanity, asthma, minor chorea, habit chorea, hysteria, general nervousness, neurasthenia, nervous palpitations, lithæmia, cerebral syphilis, diabetes, curvatures, ataxias, and paralyses; those treated by special more or less local methods included cases of hemiplegia or monoplegia, infantile paralysis, lead paralysis, rheumatic neuritis, muscular atrophy, aphonia, and writer's or telegrapher's disease.

Much could be said, did time permit, about the beneficial effects of regulated physical culture in idiocy. For the improvement of the general nutrition of a class of unfortunates, usually deficient in this respect, as well as for their training and development, both mental and physical systematic exercises are of the utmost value. In some grades of idiocy attention should be paid to individualizing the treatment by exercise. To a certain extent gymnastics can be used for diagnostic and prognostic purposes in idiocy, observation of those attempting systematized exercises determining the possibilities as to general improvement.

A few weeks since, in the Insane Department of the Philadelphia Hospital, Dr. Mills had started a class in systematized active exercises, selecting eight women suffering from melancholia, and putting in with them to give zest to the treatment two other cases not mentally depressed. Sufficient time had not yet elapsed to determine how much in a curative way could be accomplished by such treatment, but already the experiment had proved an instructive one. He found that even these patients, plunged into the profoundest depression, could, by sufficient persistence, be aroused to the performance of some movements; others did moderately well; some very well. The difficulty of fixing the attention of these patients, and yet the possibility of doing it by sufficient effort, had been clearly shown. The class had made much im-

provement in facility and rapidity. Small classes should be formed in large insane asylums, and the treatment given a thorough trial.

Systematized active exercises serve a good purpose in some of the various disorders designated as asthma. One case of this kind, a young lady, despondent, weak, dyspeptic, hysterical, with feeble heart, and subject to attacks of asthmatic breathing, improved with great strides in a few weeks under general active exercises. She began treatment with half-pound dumb-bells, and at first could only stand five minutes' work. The exercises were increased, until half an hour was reached, and dumb-bells weighing four pounds were used.

In the treatment of chorea, or rather choreas, systematized active exercises are valuable. Special forms of gymnastics have been employed for this affection particularly in France and Germany, to a large extent, by Napoleon Laisné, a French professor of gymnastics, and evidently an earnest and enthusiastic worker in his chosen field.

Two cases of minor chorea improved under medicinal treatment up to a certain point, and then would advance no further. General exercises with light dumb-bells were ordered, and in both cases the progress to complete recovery was rapid. In the treatment of habit chorea, he found the exercises have a peculiar value.

The advantage of any treatment which involves specific direction and the adroit calling out of the volition of a patient must be evident to everyone who has had experience with hysteria in its manifold forms. In hysterical paralysis much can be done by laying out a careful plan of treatment by exercises, and gradually leading up to their full performance. For the improvement of nutrition, and of what may be termed the general nervous and mental tone of hysterical patients, systematized active exercises fill an important place. Properly used and controlled, they may also prove most beneficial for cases of general nervousness, and also for neurasthenia. Whatever view may be taken of the much mooted question of neurasthenia, without doubt both respiratory and muscular power, either primary or secondary, is often deficient, and the nerve centres themselves can be strengthened and improved by exercising these two powers. Care should be taken not to force individuals suffering in this way to excessive effort at first.

For the group of diseases which fall to the lot of both the neurologist and orthopædist—cases of curvature, deformity, atrophy, etc.—systematized active exercises have long been used by the best authorities. The more particular object was to call attention to the value of systematized respiratory exercises in setting up or straightening the feeble and stooped, who also frequently are sufferers, in some degree from nervous or mental weakness. If, at the same time, appropriate general hygiene is used, the improvement in such cases is sometimes simply wonderful.

For gout and lithæmia, to promote excretion and nutrition; for anæmia and spanæmia, to assist assimilation and further oxidation; for headache, sleeplessness, and nervous irritability, to soothe and calm the nervous system; to aid elimination in cases of lead, arsenic, mercurial, and other metallic or toxic diseases; for diabetes, to favor the skin and increase combustion, systematized active exercises have a value which cannot be too highly extolled, and one which Dr. Mills had had an opportunity to demonstrate in his own practice.

In curable ataxias, as in those which follow diphtheritic or exanthematous diseases, and in the hysterical varieties, systematized active movements, the patient at first lying down or sitting, and subsequently standing, had proved of great service.

In patients suffering from multiple neuritis, or some curable forms of myelitis, advantage should be taken of the first signs of motor improvement to begin with active exercises, while the use of electricity and massage is continued. The particular point upon which it was desired to insist, was that the attempt to join the will of the patient to the long unused muscles, should not be deferred a moment longer than was necessary. Simple attention to this truth, which ought to be self-evident, would in many cases have saved patients from weeks or months of uselessness.

In the treatment of various forms of paralysis, that systematized active movements may be employed with advantage has long been known. Even in paralysis from organic brain disease, a clear method of using gymnastic treatment will be found to serve an excellent purpose.

For some of the arthritic neuroses, and for rheumatic neuritis, or muscular rheumatism, these exercises are of undoubted value. Dr. Mills saw three cases of a form of rheumatic neuritis affecting the deltoid and adjoining muscles, in which the progress to complete recovery was much assisted by an early resort to dumb-bell exercises and pulley-weights.

Hysterical aphonia or apsythria (loss of the power of whispering) can sometimes be treated successfully by a species of respiratory gymnastics, or a combination of respiratory with vocal and muscular gymnastics.

In certain cases the treatment by rest, seclusion, etc., could be successfully combined with that by systematized exercises. After the nervous or broken-down patients suitable for the treatment have progressed to a certain point; after their nutrition has been placed upon a firm basis, respiratory exercises without apparatus, or with very light dumb-bells, could be carefully begun. Five minutes, or perhaps only three minutes, should be taken at first, and the time should be increased with the utmost caution. In a recent neurasthenic case with hystero-epileptic seizures, after the patient had improved under the rest treatment, systematized active exercises were resorted to with the greatest benefit. In those cases of hystero-epilepsy in which the seizures are partially voluntary, or of the induced voluntary kind, the use of such exercises assists the patient in obtaining that control of herself and her movements which enables her to resist the beginning of the attacks.

CORRESPONDENCE.

INTRACAPSULAR REMOVAL OF THE SPLEEN.

To the Editor of The Medical News,

Sir: In The Medical News of January 21, 1888, in an editorial entitled "Inaccuracies in the History of Splenectomy," attention is called among other things to an operation in 1711 by Ferreri which consisted in opening an abscess of the spleen. The paragraph ends with the statement that a similar case occurred quite recently in this country. A case occurring recently in this city, in which I was the operator, is probably the one referred

to. I shall report this case in full at a later date under the title of "Intracapsular Removal of the Spleen." Briefly the points in the case are as follows: The patient was a married woman, aged twenty-nine years, presenting a large spleen extending to within an inch of the crest of the ilium and beyond the median line. The cause was an hydatid cyst. For two weeks prior to operative interference she had a temperature of 105°. On October 4th, 6th, and 9th I aspirated the cyst. I then determined to open the spleen, and on October 14th performed splenotomy through an inch and a half abdominal incision. October 28th I made a counter-opening at the free end of the lower rib.

At various intervals I removed with finger and dressing forceps accessible portions of spleen; at one time removing in bulk as much as a normal spleen. December 2d, a week after I had ceased to be able to remove any more by the finger or forceps, a characteristic sloughing process began which ultimately removed the last of the spleen—a small portion which I had located in the most posterior part of the cavity close to the diaphragm.

Very severe hemorrhage, most profound anæmia, and an almost fatal attack of pneumonia complicated the case. January 12, 1888, the primary wound was allowed to close, the counter-opening will be closed in a few days. The patient is sitting up, eating better than for five years, and sleeping better than for two years.

I take this means of calling attention to the case to correct an impression caused by an inaccurate newspaper report. I did not open an abscess of the spleen, nor did I perform a technical splenectomy. The operation was done to let out the contents of an hydatid cyst, the sac of which was highly inflamed. On opening the spleen it was found that the sac had ruptured, and the contents had rendered the spleen so septic as to indicate its early removal. While awaiting consent to a technical splenectomy I determined to remove portions of the organ gradually until urgent symptoms might compel me to desist. One danger always beset me, that from hemorrhage, but I always succeeded in checking it before it became dangerous. The condition of the capsule, thickened from capsulitis, was an element of safety in the case; although for the same reason retraction of the capsule and consequent contraction of the cavity was delayed. The subsequent history of the capsule I will refer to at a future time. I have, in the pathological laboratory of the Jefferson Medical College, some considerable sized pieces of the spleen with the remains of the cyst wall to show when occasion requires.

In concluding this letter I would ask if this is not the first case on record in which a spleen has been gradually but deliberately removed from within its capsule.

Respectfully yours,

ANDREW J. DOWNES, M.D.

PHILADELPHIA, January 24, 1888.

THE DIURETIC INFLUENCE OF STROPHANTHUS.

To the Editor of THE MEDICAL NEWS,

SIR: Your editorial note under the above heading in a late issue of THE MEDICAL NEWS is rather misleading, because it overlooks the work of Prof. Fraser, the real discoverer, as well as the clinical observations of others who have given the matter very careful attention; and with your permission, I should like to correct the erroneous impression which obtains regarding a most important remedy.

You say, "So much has appeared in the journals during the last few months concerning strophanthus and its effects on the heart, that its action on the rest of the system has been overlooked." In reply to this let me refer you to the paper of Prof. Fraser, published in the *British Medical Journal* of November 14, 1885, where he reports five cases treated by strophanthus, in two of which the diuretic action of the remedy is noted as follows: (1) The amount of urine was found to be 13 ounces and 27 ounces respectively, on the two days preceding the administration of strophanthus. The remedy was begun on January 24, and on that day the amount of urine voided was 22 ounces; on the 25th it had increased to 42 ounces, on the 26th, to 96, on the 27th, to 152, and for the succeeding twelve days it ranged in amount from 63 to 109 ounces daily. (2) In the next case the average quantity of urine voided in the two days preceding the use of strophanthus was 27 ounces, but on the day following it was increased to 55 ounces, on the second day to 58, on the third day to 70, on the fourth day to 74, and on the fifth day to 82.

In a communication to this journal, published November 5, 1887, page 553, I have referred to strophanthus as a remedy "which would act principally upon the heart, and lightly upon the bloodvessels, which, like digitalis, would produce diuresis and reduce temperature. . . . As compared with digitalis, its action upon the heart is more than twenty-five hundred times greater; while on the bloodvessels its action is less than one-tenth that of digitalis." In the report of a series of cases treated by strophanthus (*Med. and Surg. Rep.*, September 10, 1887), I have spoken of the diuretic action of strophanthus, putting forward a theory to account for this specific effect on the renal function.

You say also that it has been found that strophanthus "increases the urinary flow, both by mechanical pressure, due to greater arterial tension, and also by a direct stimulation of the secreting structure of the kidney." The first part of this proposition is scarcely warranted by the facts, as I shall presently show; the second portion is granted, and judging by the work done by Heidenhain and his pupils in the way of physiological investigations respecting the renal function, I have named this "direct stimulation" *cellular activity*. My objections to the theory of "mechanical pressure," and "arterial tension," are based on clinical observation and confirmed by the experiments of Dr. Phillips with Roy's onkometer, an account of which is given in his paper read before the Ninth International Medical Congress. He says, "When the action of strophanthin on the kidney is investigated, it is found that the drug only causes a slight and temporary contraction of the organ, which soon returns to nearly, though not quite its previous volume. Thus, whereas digitalin will produce a contraction of the kidney lasting half an hour, strophanthin, on the other hand, produces a much slighter contraction, lasting only twenty or thirty seconds. Further, it does not produce any marked increase in the rate of the urinary flow, although, *à priori*, it might have been expected to do so." Dr. Phillips's experiments, although made under favorable conditions, were made upon healthy kidneys, and cannot be accepted as trustworthy guides when we have to deal with diseased conditions, an important factor

which is often overlooked. By reason of our inability to subject our patient's kidneys to the test of Roy's onkometer, we are compelled to conduct our treatment in accordance with the clinical indications, and these indications clearly point to strophanthus as a valuable and safe diuretic in properly selected cases, experimental physiology to the contrary notwithstanding.

You intimate that "cumulative effects may be found to follow its administration, when the remedy shall have come into more general use, and it is suggested that "So little is known as to the renal effects of the drug, that it is possible that it may be too irritating to use constantly in cases of kidney lesions," all of which seems to me an attempt to discourage its use, and an indirect bid for the continuance of the deadly digitalis, which has already slain its thousands and tens of thousands. When given in proper doses the effect of strophanthus is readily appreciated in the cardiac action and in the radial pulse, and within a few hours there follows a notable increase in the activity of the kidneys, conditions which point to its rapid elimination from the system. Why, then, are we required to administer strophanthus as we have been taught in regard to digitalis, with fear and trembling?

While it may be true that little is known amongst the majority of the profession as to the renal effects of this drug, this charge of ignorance on the part of those who have observed it clinically will not hold; and I venture the prediction, that its value as a therapeutic agent will be greatly extended, when it becomes more generally known. Allow me, in concluding this rather lengthy communication, to quote from a letter lately received from a well known and highly respected physician of more than forty years' standing. He says: "The peculiar properties of strophanthus are very interesting to me. . . . I have long believed, and have long taught, that the reckless use of digitalis, in all cases of heart weakness, was doing much mischief. I am glad that scientific investigators are coming to the same conclusion. My conclusions were those of an active practitioner, not an experimental physiologist."

JOHN AULDE, M.D.

4719 FRANKFORD AVE., PHILADELPHIA.
January 18, 1888.

[In reply to the above, we have only to say that we were well aware of the results of Dr. Fraser, and did not quote them because the editorial referred to was intended to call attention to the more recent studies on the drug. Dr. Fraser's experiments on man concerning the renal action of strophanthus are very limited as compared with those of Drasche and Mairet and Combemale. The results of Drasche are so closely in accord with the results of Phillips as to the influence of the drug on the normal kidney, as to be of great interest.

Moreover, the results of Phillips do not clash with the belief expressed as to the effect of increased blood pressure, for Phillips found that those drugs which increased secretion by renal stimulation produced first a momentary contraction with decreased renal flow, followed by expansion with increased flow. The very fact that the kidney contracts proves the mechanical pressure theory rather than the contrary, for every one knows that when actively at work all glands become swollen and comparatively turgid.

If Dr. Aulde has read the editorial with no more care than he has exercised in quoting us, we cannot wonder at his note. We did not state that "cumulative effects may be found to follow its administration," but that the statement of Mairet and Combemale, in denying such a possibility, could not be considered proven, "until the drug has been more widely used." Considering that strophanthus has been used and is used at present as a most lethal arrow poison, it is rather stretching a point to compare it favorably with the "deadly digitalis," of which the dose is generally three or four times the dose of strophanthus, even if the supposed attempt had been made to give the older drug any assistance.

No charge of ignorance was made, but if the writer can find the records of even one thousand of the "slain," toxicologists will certainly be indebted to him.

We note that while Dr. Aulde believes in the results reached by the experimental physiologists in the first part of his note, he rather curiously tries to decry them in the latter part.—ED.]

NEWS ITEMS.

Dr. Henry C. Coe has been appointed an obstetric surgeon to the New York Maternity Hospital, succeeding Dr. E. L. Partridge, resigned.

The Tariff on Surgical Instruments.—The Georgia Medical Society has started a "movement to remove the import duties from all medical and surgical instruments and appliances, including those used in the diagnosis as well as treatment of disease, so that they may be furnished to those needing them at the lowest possible prices," and they present the following facts to show the extent of the grievance and the justice of their plea:

1st. Physicians are at the mercy of instrument makers in regard to price, make, and quality of finish, because of the lack of sufficient competition.

2d. The price of instruments made in this country is out of proportion to that paid for similar instruments on the Continent of Europe.

3d. Surgical instruments and appliances are so costly that few entering the profession can provide themselves with an outfit adequate to carry on a general practice. At present prices it is impossible for a country physician's income to sustain his investing in costly instruments, and as a result many simple cases, such as retention of urine, foreign bodies in nose or throat, deep-seated abscesses, etc., all of which could be relieved at once with the proper instruments, must either die from the immediate cause or from the effects of time lost in seeking skilful manipulation, or else they are frequently crippled and disfigured, because the most intelligent help though patiently given is itself crippled for want of proper instruments.

4th. The cheaper grades of instruments are either antiquated or so poorly made that they may prove a cause of failure in operation, sapping, as it were, the natural inclinations to surgery in its inception.

5th. European instruments are from twenty-five to seventy-five per cent. cheaper than ours, and their introduction into the market will enable the mass of doctors to buy those of prime necessity, will bring down the price of home-made appliances, and oblige the makers to use good material, and put a better finish to their work.

6th. The removal of import duties on surgical and other instruments used by the profession, and on medi-

cines in general, will produce the same results as we all know it did on quinine.

Philadelphia Hospital.—Dr. James Hendrie Lloyd has been elected Neurologist to the Philadelphia Hospital in place of Dr. Roberts Bartholow resigned.

Death of Dr. George A. Crosby.—Dr. George A. Crosby, one of the most prominent physicians in New Hampshire, died at Manchester, on January 30th, of congestion of the brain, after a two weeks' illness. Dr. Crosby was born in Lowell, Mass., in 1831, and came from a race of distinguished physicians. He was graduated at Dartmouth in 1852. In 1857 he sailed for Peru, but stopped on the Isthmus of Panama and cared for the railroad employés, who were being swept away by cholera. From there he went to Mexico, and treated Mexicans afflicted with yellow fever. On the breaking out of the Civil War, when he returned to the United States, he volunteered and rendered surgical and medical service in camp and on the field throughout the struggle. Dr. Crosby had been President of the New Hampshire Medical Society, and was a member of the Manchester Board of Health at the time of his death.

A Prize for Pasteur.—The Turin Academy of Sciences has awarded the Pressa prize of 12,000 francs to M. Pasteur.

The Neurological Society of London has been recently organized. Samuel Wilks, M.D., F.R.S., is its president, and Sir James Crichton-Browne and Jonathan Hutchinson, vice-presidents. Its list of membership includes the best English neurologists.

The Martyrology of Psychiatry.—Under this striking heading *The American Journal of Insanity* quotes the researches of a French physician who has collected twenty-four instances of murderous assault on asylum physicians by insane patients. The list includes four Americans.

Professor Koch has been made *General-Arzt* in the Suite of the Prussian Sanitary Corps.

An Institute of Christian Science.—Professors of Christian Science, as taught in the college for this theory at Boston, have applied for a charter in Philadelphia. On challenging their right to license under the term practitioners the assertion was made that a failure to administer drugs exempted them from this classification. Further legal trial of the terms employed in licensing medical persons will undoubtedly result.

The Rewards of Medicine.—Sir Andrew Clark, of London, is reported to have said that "I worked twelve years for bread, twelve for butter, and twelve more for the luxuries of life."

Dangerous Tea.—An English wedding party was recently poisoned by partaking of tea brewed in an old copper urn. All the guests were made seriously ill, and required prompt medical care.

Professor Gosselin.—A bronze medal is about to be struck in honor of this distinguished French surgeon.

A Floating Hospital for Fishermen at Sea.—A project has been recently set on foot in England to provide a hospital ship for the fishermen in the North Sea. It is estimated that about twelve thousand English-speaking men are afloat upon this body of water, and in situations which render it difficult to obtain medical care.

Cheap Quinine.—The *American Analyst* reports that the price of quinine has been reduced from $5 an ounce to less than $1, and a dealer says it will remain cheap hereafter. The reason is that the chinchona are not destroyed in taking off the bark. Formerly the bark was stripped clean and the trees were left naked to bleed to death. Now, when the bark is removed, the trees are swathed with moss, new bark forms on them, and instead of living to bear one crop of bark they yield their bark yearly.

A Burial Reform Association.—From the *Boston Medical and Surgical Journal* of January 5, 1888, we learn that a Burial Reform Association has recently been organized under the auspices of the Protestant Episcopal Church, although it is intended that it shall be undenominational in character. Among the reformatory measures which it seeks to carry out are the following:

The exercise of economy and simplicity in everything pertaining to funerals.

The early interment of the body in soil suitable for its prompt resolution into its ultimate elements.

The use of such materials for the coffin as will rapidly decay after burial.

The substitution of burial plots for family vaults. The encouragement, on sanitary grounds, of the removal, in crowded districts, of the body to a mortuary, instead of retaining it in rooms occupied by the living.

The Adulteration of Wines.—The *American Analyst* of January 1, 1888, describes the following methods of adulteration of wines, most commonly practised by unscrupulous dealers:

The simplest one is mixing. The native wines of Ohio, New York, Missouri, and especially California, differ from those of Europe chiefly in being richer in body, flavoring, and alcohol—so rich, as to be at times coarse or harsh. A mixture of one-third light-bodied Rhine or Bordeaux wine, one-half of the corresponding California stuff, and one-sixth water will produce a liquid that is hardly distinguishable from a first-class imported vintage.

The proportions given simply apply to one case, and must be varied to suit the palate of the mixer as well as the chemical composition of the ingredients employed. Thus, one-half Santa Rosa, one-third water, and one-sixth imported Binger are used by a Fulton Street merchant to produce a fac-simile of the last-named wine. The skill and delicacy attained by these mixers is phenomenal. One, a German-American dealer, can taste any ordinary wine once and in fifteen minutes make a composition that can scarcely be distinguished from the original in color, flavor, bouquet, sweetness, and body.

A lower class of imitators dispense with the natural grape altogether. One concern on Front Street, unearthed by the New York Board of Health, in May last, was found to have its vineyard in the cellar and top loft of a vast warehouse. Here, from damaged raisins, currants, elderberries, and other cheap dried fruits it made a wine of the cheapest and vilest kind. It was so vile and

poorly made that the "viniculturist" was compelled to fortify it with spirits, and preserve it with salicylic acid to prevent its putrefaction in either glass or wood. The officials learned that he sold the execrable stuff to groggeries, cheap restaurants, and to wholesale dealers for mixing purposes, A "vineyard" of similar character in Hudson Street supplies the basing for "Beef, Iron, and Wine," "Wine of Cocoa," "Wine, Iron, and Strychnine," and other well-known medical preparations. Nor is this miserable work confined to New York City. In the *Courrier des États Unis*, this current month, are two book advertisements, one which teaches how to make a superior wine out of raisins, and the other how to make the same thing out of raisins, currants, and other materials. The books are written and published in Paris, and must have a large sale and use, both at home and abroad, when their editor finds it profitable to advertise them on this side of the Atlantic.

The Hour of Delivery.—The *British Medical Journal* writes that an industrious statistician has recently contributed to a medical journal at Lille, the results of an analysis of one thousand labors, with the precise hour at which delivery took place. He reports that 45 per cent. of the labors terminated between 8 A.M. and 8 P.M., and 56 per cent. between 8 P.M. and 8 A.M. Pushing the inquiry a step further, he found that 23 per cent. terminated between 6 A.M. and midday; 22 per cent. between midday and 6 P.M.; 27 per cent. between 6 P.M. and midnight, and 54.1 per cent. during the night—that is to say, between midnight and 6 A.M. These figures only apply to normal labors, in which nothing interfered with the physiological course, so that they go far to confirm the popular notion which admits the greatest frequency of delivery at night, "conception generally taking place at about that time."

Air Filters in Limiting the Contagion of Scarlatina.—Dr. Eccles, of Brooklyn, describes in *Science*, of January 6, 1888, the following device which he has found useful in limiting the contagion of scarlatina:

The evidence we have, indicates that the germs or spores float as impalpable dust in the air. It is found by experiment that wet gauze, by evaporation, is colder than surrounding air. Dust is attracted from warm air to a cold body. If that body is wet, it adheres. By canopies of mosquito-netting over the sick bed, kept wet with bichoride of mercury solution containing glycerine, no dust can pass through the meshes in either direction. The cooled threads attract across the narrow space of the mesh all dust that reaches there. The glycerine and water fix it, and the corrosive sublimate sterilizes it. To keep up the application, two layers of netting are required—one fixed, the other removable. The outer removable one can at stated times be wrung out of a fresh solution, and put back again. Overlapping folds can allow the passage of food, medicine, etc., to the patient. This provides perfect isolation even in a room occupied by others.

To Render Tincture of Iron Tasteless.—The *American Druggist* for January, 1888, gives two methods which are very effective in accomplishing the result desired.

1. Pour the measured quantity of tincture of iron, immediately before administering or taking it, into a sufficient quantity of *milk*, about a wineglassful for every 10 drops of tincture. This method was first recommended by Hager. The iron probably changes to phosphate in this case.

2. Pour the tincture into a sufficient quantity of *Vichy water*—about 1 fluidounce for every 10 minims of tincture. This method is often practised in the public hospitals of New York. Our attention was first drawn to it by Dr. A. B. Pope. In this case, of course, the iron changes to carbonate, the carbonic acid being speedily disengaged, and ferrous hydrate being deposited on standing. In this form it has been found to be quite easily taken, and, so far as known, with best results.

A Healthful Sleeping-Room.—Dr. Crowell, in the *Popular Science News* for January, 1888, describes a healthful sleeping room as follows:

Modern luxury has made sleeping-rooms receptacles for elegant appointments; and we find them filled with numberless articles of fanciful design—knicknacks, draperies, rugs, carpets, and every conceivable thing that æsthetic taste can invent. Hence there can be no pure air in such rooms, and the accumulation of *filth* and dust is something wonderful. While we would not strip these rooms of all artistic adornment, we insist upon simplicity; and first of all, we would discard heavy woollen carpets. They are filthy; and if the good housewife does not believe it, let her look across the room when the sun is shining through it, and see the line of dust constantly rising. Of course, this process goes on night and day, and it is unavoidable when the floor is encumbered with the woollen covering. Let the floor be laid in solid wood—birch thoroughly kiln-dried is perhaps the best—and let there be no cracks or seams for dust and vermin. A few closely woven rugs can be disposed in front of bed and toilet table, and these can be removed and shaken every day, while the floor is wiped with a damp cloth. The moral influence of such cleanliness is certainly conducive to sleep, to say nothing of the direct sanitary effects. Bare walls are better than paper hangings, even when the paper is free from arsenic; and with the soft, warm tints at the disposal of the painter, the walls can be made to glow with cheerful light.

Sinks with hot and cold water, connected with the sewerage system, should be discarded for obvious reasons; and in all houses where the fixtures pollute the sleeping-room, there should be a complete revolution in their removal. Not one in twenty of these filthy receptacles is securely trapped; and with the old devices of chain, plungers, overflow pipes, and leaky crevices, we are at variance with all sanitary rules and conditions. Let all such "conveniences" be relegated to the bath-room with open plumbing.

It is better to go back to the old washstand than to endanger the health with any such superfluous trappings. An open fireplace is not only a luxury, but a necessity as a mode of ventilation; and then, with iron or brass bedstead, with woven wire bottom and hair mattress, and with simple window-shades or shutters, we shall have a sleeping-room combining the requisite conditions for cleanliness and health.

Glucose by Synthesis.—Another important acquisition, says *Nature*, to our store of knowledge has recently been made. Glucose, commonly called grape sugar, has been

artificially prepared by Drs. Emil Fisher and Julius Tafel in the chemical laboratory of the University of Wurzburg. This happy achievement, which is announced in the number of the *Berichte* just received, is one which has long been looked forward to, and which cannot fail to give deep satisfaction in chemical circles all over the world. As is generally the case in syntheses of this description, not only has the sugar itself been actually prepared, but, what is at least quite as important, considerable light has been thrown upon that much-discussed question, the constitution of sugars. A most remarkable, and yet only to be expected, attribute of this artificial sugar is that it is found to be entirely incapable of rotating a beam of polarized light. As is well known, there are several naturally occurring varieties of glucose, all of which may be expressed by the same empirical constitution, and all possessing the power of rotating the plane of polarization; dextrose, or grape sugar, the best known of these varieties, as its name implies, deviates the plane of polarization to the right, as do several other less important varieties; while lævulose, or fruit sugar, rotates the plane to the left. But in artificially preparing a glucose there is just as much tendency for one kind to be formed as another, and the probability is that both dextro and lævo are simultaneously formed, and thus neutralize each other, producing a totally inactive mixture. It may be that, as in case of racemic acid, the two kinds are formed side by side, and neutralize each other in the solution; or it may even be, that, as is the case with truly inactive tartaric acid, there is a true neutralization within the molecule itself. Which of these hypotheses is correct is a question for further work to decide.

A Poisonous Prescription.—An Australian pharmacist recently dispensed the following prescription:

R.—Potassii chloratis . . .	gr. 40.
Syr. ferri iodidi	fl. ℥ 4.
Syrupi	fl. ℥ 4.
Spir. chloroformi . . .	♏ 20.
Aquæ . . .	q. s. ad fl. ℥ 2.

"As reported there, 'the mixture, when dispensed, was of a light-brown color, which gradually darkened, and in a few hours iodine was deposited in abundance. In this condition, the mixture was administered to a child, eventually causing death.'"

Now it is well known that, under the influence of light and air, and in the presence of water, ferric iodide constantly eliminates traces of hydriodic acid, which will, under certain conditions, decompose so that the iodine is set free, giving the solution a dark color. In the presence of sugar or certain other substances (such as hypophosphorous acid), however, the free iodine is again taken up and reconverted into hydriodic acid. As the process of eliminating hydriodic acid seems to go on continually, it appears to us that this body exerts its decomposing action on the chlorate while in *a nascent state*. But the eliminated chlorine immediately again decomposes the trace of iodide formed. We can account for the reaction in no other way, but would suggest that this subject be taken up by some one who has the necessary time to devote to its study. Incidentally we would remark that the presence of peroxide of hydrogen in the atmosphere, or the addition of peroxide of hydrogen to hydriodic acid or to the iodides causes an abundant liberation of iodine. It is not impossible that the presence of this body may have something to do with the reaction.—*American Druggist*, January, 1888.

To Clarify Muddy Water.—The *Pharmaceutical Era* for January, 1888, gives the following directions:

Charge slips of filter paper respectively with ferric chloride and with sodium carbonate, dry and preserve for use. Place one of the ferric chloride slips in the water to be clarified, and in a few moments one of the soda slips. The flocculent precipitate of ferric hydrate produced clarifies the water, which may then be filtered through a funnel whose neck is filled with a piece of sponge.

Alum may be substituted for the ferric chloride, and will give nearly as good results, but will leave a little more saline matter in solution.

Hindoo Philanthropy.—The *British Medical Journal* writes that the Maharajah of Darbhanga, in Bengal, has established a hospital and dispensary for female patients near his ancestral seat in the district of Darbhanga, Behar, and is erecting new quarters for its accommodation at a cost of 55,000 rupees, in connection with Lady Dufferin's Medical Aid for Women Fund. This is one of the least considerable of the long series of philanthropic acts on the part of this distinguished Hindoo on a scale of magnificence hardly ever equalled.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM JANUARY 24 TO JANUARY 30, 1888.

BURTON, H. G., *Captain and Assistant Surgeon.*—Granted leave of absence for one year on S. C. D., to take effect when able to travel.—*S. O.* 19, *A. G. O.*, January 24, 1888.

FISHER, W. W. R., *First Lieutenant and Assistant Surgeon.*—Granted leave of absence for one month, on surgeon's certificate of disability.—*S. O.* 4, *Department of California*, January 20, 1888

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING JANUARY 28, 1888.

WHEELER, W. A., *Passed Assistant Surgeon.*—Granted leave of absence for thirty days, January 24, 1888.

WHITE, J. H., *Passed Assistant Surgeon.*—Granted leave of absence for two days, January 26, 1888.

WATKINS, R. B., *Assistant Surgeon.*—Granted leave of absence for thirty days, January 28, 1888. Resignation accepted to take effect March 15, 1888, January 28, 1888.

VAUGHAN, G. T., *Assistant Surgeon.*—Appointed an Assistant Surgeon January 25, 1888, vice A. D. Bevan, resigned. Assigned to temporary duty at Marine Hospital, Boston, Mass., January 26, 1888.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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ORIGINAL LECTURES.

THE ANNIVERSARY ADDRESS

Before the Medical Society of the State of New York.

Delivered at Albany, February 8, 1888.

BY ALFRED L. LOOMIS, M.D.,
PRESIDENT.

GENTLEMEN: I desire this evening to invite attention to the following problems which are to-day engaging the attention of the profession, and for which it is asking solutions:

1st. The relation of microbes to disease processes.

2d. Inoculation as a means of modifying or preventing disease.

3d. The causes of abnormal temperature in disease.

4th. The effects of antipyretics in the treatment of disease.

Every generation of medical workers has had its special theories and supposed discoveries, to test, to accept, or discard; but never before has the field of medical investigation been so extensive, the workers so many and able, and the methods of research so varied.

It may be interesting as well as instructive, by way of introduction, to sketch briefly some of the methods of investigations which in different ages have held the profession, and compare them with the methods of to-day. Before instituting any comparison, however, it is but just to recognize that all knowledge is of slow growth, and that the law of development applies to mind as well as to matter—we condemn methods and means, because they have been tried and found wanting, and not because of personal superiority of intellect—nineteenth century intellectuality must own its indebtedness to mistakes and failures which antedate the birth of Christ.

In every science results are reliable and valuable in direct ratio, not only to the accuracy with which deductions are made from given data, but also to the methods of reasoning, the truthfulness of postulates, or supposed facts, and the recognition of all the relations which may exist among determined facts under varying conditions.

No one can deny to the father of medicine equal ability with himself, even while criticising and condemning many of his arguments based upon well observed facts. He argued from but a few of the many correlated symptoms of any disease, in entire ignorance of all its primary pathological changes, and erected a system of medicine on the basis of his own observation. The earlier periods of medical history present themselves as curiosities rather than times which we may fairly criticise or compare with our own—medical investigation so superficial could hardly lay claim to the name of method—with but little anatomical and no pathological knowledge it is hardly to be wondered at that even the best minds were lost in the wildest forms of speculation.

We recognize most clearly that no one mind alone can advance medical knowledge, but by an infinitesimal degree, and even this is the result of a mutual interchange of thought. In ages then when strong minds were few and intercourse most limited, men must needs have been more than human to have accomplished more than the masters did. But ambition outran ability, for long before "ye men of Athens spent their days in hearing and telling some new thing," the same search for ultimate facts had been going on, and human minds impatient of meagre results gained through the hard logic of facts, easily drifted into the limitless sea of theory and quickly lost sight of the land of truth and possibility. To speak more exactly, the deductions of theories from few and isolated facts and the construction of entire systems of medicine upon a single and often unproved assumption is characteristic of the earlier ages of medicine. By how much is the medical mind different to-day; under greater restraints, by reason of sharper criticisms, and with broader foundations no such extensive speculative theories are offered for our consideration as mark the earlier history of medicine, but the same spirit remains as one of the heaviest clogs to the advancement of true medical knowledge.

When theoretical conclusions are put forth as established facts, and not as questions demanding experimental answers, then modern medicine is not only turning back to the darkness of earlier ages, but it is putting a stumbling block for the feet of those who follow.

There is no better test of the scientific mind than its power in deciding, after any given demonstration, between legitimate corollary and unfounded inference.

In no direction perhaps has medicine made greater advances in the last quarter of a century than in this; give us facts not fancies—proofs, not propositions, is the demand of the medical mind of to-day—"it is digested facts which nourish thought," not crude ones.

The empiricism of the Alexandrian school is perhaps the earliest system of medicine founded on a scientific basis, and offers the fairest points for comparison with the scientific empiricism of to-day. In this school anatomical and physiological investigations were recognized as essential to a thorough knowledge of disease. There was, however, a marked failure to recognize the necessity of determining the changes that were produced in organs and tissues by disease, and to connect morbid conditions with symptoms. Histological pathology was an impossibility without instruments of greater precision, and even gross pathology received no attention. Such a failure to appreciate the evident results of pathological processes is the more remarkable in a school which did more than all others of ancient times to advance medical knowledge.

Under the shadows of the granite hills of New Hampshire, on the banks of the Connecticut, the last resting place of one of the fathers of New England medicine is marked by a small white stone having only this inscription, "The Disciple of no Man." It is not alone the

description of that man, it is the keynote of modern medicine, and symbolizes one of the grandest changes which has ever revolutionized any science.

For nearly a thousand years the history of medicine may be traced by a few names. Schools were founded on men, not principles, until loyalty to one's master, the founder of a school, was stronger than loyalty to truth; and it was doubtless better, both for medical science and the patient, that the multitude were content to be led, and that between masters and pupils such relations should have existed. But that such a condition of affairs should have continued so long after the "period of letters" in Europe, is a cause for astonishment. Even as late as the sixteenth century, Galen and Aristotle, and the Arabic authorities, were the teachers of medicine throughout the civilized world.

When Ambrose Paré, defying the traditions of more than ten centuries, and the teachings of all authorities, took the bold step of tying an artery, he became the embodiment of that individuality and scientific scepticism which to-day are among the most striking characteristics of medical men—an individuality which thinks and decides for itself, a scepticism which doubts, not for the sake of doubting, but because it has too often leaned on broken reeds, too often placed its trust in authority only to find it like apples of Sodom. A scepticism which demands proofs and counter-proofs; which scans facts, not men, and learns to recognize truth whether offered from the wilds of the new world or the literary storehouses of the old. As a legitimate result of this spirit there has been developed, what is without question the greatest advance in methods ever made in medical science. It is the step which has made medicine truly scientific. From the crumbling ruins of abstruse theories and the wrecks of individual systems, overthrown by honest scepticism, comes the recognition of the fact that man is not an accident of undetermined forces—the one thing in all the grand scale from worlds to worms that is without plan, or subject to law—but rather the crowning glory of infinite wisdom, a machine of marvellous intricacy, yet subject to and obeying the laws of his being, with the same certainty as the sun holds his attendant planets in their unchanging way; and what has been the result? The medical world has started afresh at the very rudiments of the science. It has taken its primer, and in the kindergarten of the laboratory, it is seeking to know the laws of life and health, and the causes of disease. It has gone far beyond what antiquity ever dreamed. It has developed the empiricism of the Alexandrians, and curbed the philosophy of the Greek. It is seeking to unite scientific empiricism, with equally scientific theory, into one perfect whole; to have all theories based upon clearly determined facts, and to use such theories only as guides to the discovery of the next link in the chain which shall some day bind in eternal subjection the bacillus that walketh by day, and the coccus that rageth by night. When the medical history of the nineteenth century shall be written, it will be that of the laboratory, and the names which the twentieth century will honor, are the names of those who have devoted their lives to establishing the unchanging laws of both health and disease which govern this infinitely complex machine which Infinite power has made in His own image.

Our first problem for discussion is

THE RELATION OF MICROBES TO DISEASE PROCESSES.

In looking over the field of bacteriological research for the past ten years, one is struck by the continuous, painstaking investigation of a vast number of observers. Never before has there been so little theorizing, with so much work, and the facts which have finally been accepted are such as have come to light only after a long series of carefully made and oft-repeated experiments. One investigator makes a statement, immediately, in a dozen different countries, and by hundreds of observers, his experiments are repeated; his statement of facts proved or disproved, and his conclusions accepted or discarded. The results which have been reached in so short a period prove the wisdom of Agassiz's principle, "That science suffers by every diversion of the energy of scientists, which tends to substitute premature theorizing for continuous investigation."

It is not my purpose to consider the biology of the different varieties of the bacteria—the conditions of their life—their susceptibility to be influenced by temperature—by the different media in which they grow, nor yet in turn how they act and react upon each other, and upon the substances which have nourished them. It must suffice merely to touch upon the practical questions presented by such studies. The life history of some forms of bacteria has been very thoroughly worked out, but the majority have been as yet imperfectly studied. On account of their universality and their peculiar vital properties, the question which most interests us as practising physicians is, May not these microbes have the power of originating and controlling many of the morbid processes which take place in disease? When we consider the millions of microbes by which we are constantly surrounded—that the soil beneath us and the air around us is laden with them—that they enter the body in the very air we breathe, the food we eat, the water we drink, and yet, their influence is baneful only under certain conditions; that it is even possible for men to live in an atmosphere and surroundings which are ladened with the most pernicious forms of bacterial life, and yet be perfectly well, the question comes to us, Why is this? If this question is ever answered, it will not be until we have a fuller knowledge of the conditions of life, and the inherent properties of even the most carefully studied varieties of bacterial life; nor until we are able to trace more fully the cause and manner of their disappearance after they have gained an entrance into the healthy organism which is able to resist their invasion. It may be regarded as demonstrated that when certain pathogenic microbes have gained entrance into the body and reached localities which afford certain conditions for their development they multiply and form colonies, but what these conditions are is not definitely determined. For example, if a mass containing different varieties of bacteria is introduced into an animal, some will find a suitable soil and multiply, others will die—while if a similar mass is introduced into an animal of a different species, those bacteria which develop in the first animal will perish in the second—as the bacterial colonies enlarge or multiply they invade the surrounding tissue cells, and in time produce degeneration and necrosis of the affected part; as a result of the disturbance of the circulation, the walls of the bloodvessels are weakened and the microbes gain entrance to the blood current. In a similar manner the

lymphatics are invaded. If the blood or lymph offers conditions suitable for their growth they multiply rapidly, otherwise they perish—their death is supposed by some to be due to the special action of the white corpuscles. Some bacteria flourish best in blood which is flowing, as the bacillus anthrax—others, as the tubercle bacillus, in blood at rest, and still others only multiply rapidly in the lymph, as the micrococcus of erysipelas. Conveyed by blood or lymph the bacteria lodge in different organs and there start secondary changes, similar to those which have taken place at the primary seat of invasion—this is well illustrated in animals that have been inoculated with pure cultures of tubercle. In this connection three questions naturally present themselves:

1st. Are organisms present in all morbid processes?

2d. Can they originate *de novo*—and is there a mutability of the bacteria?

3d. And by far the most important question: Do microbes act as invariable and sole causes of disease? Or are they the result of pathological processes instituted in their absence?

In answer to the first question, *Are organisms present in all morbid processes?* it may be stated that it is to-day claimed that specific microörganisms have been demonstrated in the following diseases—splenic fever, relapsing fever, erysipelas, tuberculosis, cholera, pneumonia, malarial fevers, smallpox, scarlet fever, measles, diphtheria, typhoid and typhus fevers, pyæmia, leprosy, acute rheumatism, ulcerative endocarditis, pyelitis, gonorrhœa, acute atrophy of the liver, and in a number of skin diseases, as herpes, sycosis, etc. And it is claimed that our inability to discover them in other diseases is no proof of their absence, for their minute size, and peculiar reaction to staining agents, render their demonstration very difficult, and as yet we have no general method by which we are able to recognize the spores of these organisms, which are known to be more resistant than the microörganisms themselves. Again, our examinations may be made in the advanced stage of the disease processes, when all traces of bacteria may have disappeared, for it has been shown by experiments upon animals, that by the time that tissue changes occasioned by bacteria are complete, they themselves have disappeared—not until our technique is more perfect can we say positively that bacteria may not be found in all diseases, especially infectious and contagious ones.

In answer to the question, *Can bacteria originate de novo, and is there a mutability of the bacteria?* it may be stated that no reliable evidence has as yet been deduced to show that microbes can originate spontaneously. The experiments of Lister and Pasteur prove almost conclusively that it is impossible for them to originate spontaneously. Koch, from his culture experiments, concludes that one form of bacteria cannot change into another form, that micrococci can never become bacilli; nor can the innocuous varieties by any change in the conditions of their lives become noxious; although many observers, such as Nagel, Davine, and Buchues dispute this; still, at the present time, the weight of evidence is with Koch. There is no doubt that the properties possessed by different bacteria may be modified, increased, or diminished, by changes in their external conditions; at one time they are more infectious than at another, but never do they acquire attributes differing from those possessed by the variety to which they belong; even in bacteria there is a struggle for existence, the micrococci may be thrust aside by the bacilli.

Our third question is more difficult to answer than either of the others, viz., *Are microbes the cause or effects of disease?* If they can be proved to be the cause, then their presence is of the greatest importance; while, if they are only the effect, our interest in them from a medical standpoint ceases. What then is the precise significance of their coexistence with the diseased processes? The facts which seem to be established at the present time are as follows: Pasteur having proved by his vital theory that bacteria are the cause of all fermentation and putrefaction, students in, and believers of, the germ theory of disease, noticing the close relation these fermentative and putrefactive processes bear to communicable diseases, reasoned by analogy, that they likewise must be of bacterial origin. After carrying on a long series of experiments; such as inoculating animals with pure cultures of various species of bacteria, it was demonstrated that in some of the specific diseases bacteria are developed, and that the same microörganism is always present in the same disease, and that these organisms could be transferred from animal to animal without changing their characteristic form—their specific physiological action—and without the presence at any time of any other form of bacteria. Therefore it was inferred that not only are these diseases of bacterial origin, but that each disease is developed only from its own microorganism, recognizable under the microscope by their size and shape, their staining properties, peculiarities of growth in nutrient media; and, as has recently been demonstrated, by their chemical reaction; for example, during the past year Koch has shown that the Finkler bacillus, the comma bacillus of cholera nostras, which is considered by many as identical with his comma bacillus of Asiatic cholera, can be differentiated from it, not by its size and shape, but by its reaction to nitric acid; for by adding nitric acid to a growth of the cholera bacillus, a very characteristic red color is produced, while no reaction whatever is shown on the culture of the Finkler bacillus. Thus advances are being made every day, which lessen the elements of uncertainty. In this connection it must be noted that we do not as yet know why different animals behave so differently toward infectious agents, still less can we account for differences in their susceptibility, for an experimenter soon learns that there is a marked difference among the lower animals, as to the degree and manner in which they are affected by microbes. One form will flourish in one species and not in another; rats are unaffected by the anthrax bacillus, while mice readily succumb to their invasions. Even among animals of the same species, there is a marked difference of susceptibility to the infectious diseases, and most of the animals upon which experiments have been made are subject to but few of the diseases of man; the power of resisting inoculation is evidently far less in animals than in man; it is, therefore, reasoning from false premises to say that the action of microbes upon animals is the same as upon man.

While a reasonable conjecture may be reached regarding the bacterial origin of infectious diseases by our experiments upon animals, positive proof can be obtained only by studying the action of their microbes upon the human body. The only diseases in which a bacterial origin has been completely demonstrated in man, are

erysipelas, splenic and relapsing fever. The proof that the tubercle bacillus is the cause of tuberculosis, requires yet the crucial test of human inoculation. The explanation of the action of bacteria in disease, as given by Prof. Ziegler, seems to me the most comprehensive and satisfactory which has yet been given. He says: "The factors which determine the invasion and the course of the development of bacteria within the human body are two.

"1st. The bacteria must be endowed with certain vital properties of a special kind.

"2d. There must be a certain predisposition to favor their development on the part of the system." For example, one with no phthisical predisposition, either inherited or acquired, may live in an atmosphere laden with tubercle bacilli, and never develop phthisis, while one with strong phthisical predisposition, under the same conditions, furnishes a fit soil for the growth of the bacilli, and quickly succumbs to their invasion. This factor of predisposition is the important one in the problem. What it really consists in, is as yet undetermined; probably it is due to some alteration of the tissues, often we can see what this alteration is, such as a local wound, a disturbance of the circulation, etc., but in the majority of instances the anatomical basis of this change is an unknown quantity which is yet to be worked out. When found, then the cycle of proof will be complete; the simple demonstration of the presence of the tubercle bacilli in phthisical processes and in the sputum, is of great practical value in the early diagnosis of phthisis, but it does not determine the relationship that exists between the bacillus and the phthisical processes. We must not lose sight of the possibility, that it is only after the physico-chemical constituents of the tissues have been morbidly altered, by a yet unknown agent, that the conditions are such as to allow of the growth and colonization of the different pathogenic microbes. If in time it shall be conclusively proved that microbes alone, or microbes plus some, as yet, unknown quantity, are the cause of disease processes, we can readily appreciate the great importance of the knowledge which is to-day being gained by bacteriological studies, and we may hope in the near future to be able to discover the microbes of each disease, and to destroy them, or render them harmless, and so combat early the development of many diseases that at present we are unable to control.

I will now pass to the consideration of our next problem, viz.:

INOCULATION AS A MEANS OF MODIFYING OR PREVENTING DISEASE.

This problem has been strongly brought before the profession by Pasteur's recent experiments in hydrophobia. The protection afforded by vaccination, against smallpox, not only by granting immunity from the disease, but by modifying its severity when it is developed, brought first before the world the practical advantages of inoculation. The next great discovery in this direction was made by Pasteur, who found that by the prolonged culture of the anthrax bacillus at a temperature of 107.6° F. or 109.4° F., and with exposure to the oxygen of the air, the virulence of the organisms decreased. Animals inoculated with the attenuated virus developed only a mild type of splenic fever, and after recovery were found to be incapable of again developing the disease even when inoculated with virus of full strength. After repeated inoculations with attenuated virus, Pasteur found that inoculated sheep were quite unaffected by injections of a pure culture of the bacillus. A practical application of this discovery has since been made by agriculturists throughout Europe. Toussant, by cultivating the bacteria of chicken cholera, found that each successive generation was less virulent than the preceding, and that this attenuated virus when introduced into animals produced a severe local lesion with but slight constitutional disturbance, and that after recovery the inoculated animals were exempt from the infection for a year or more, after which time a second inoculation was necessary. More recently Koch has proved the immunity afforded by inoculation in another disease known as the septicæmia of mice. If a rabbit be inoculated with septicæmic blood, it will die within seventy hours, but if a weakened culture of the septicæmic bacteria be introduced into the tip of a rabbit's ear the animal will only suffer from the local effects of the virus, and afterward will not be affected by repeated inoculation of the strongest culture. Koch also showed that such immunity could not be conferred by inoculation with attenuated virus in all infectious diseases—for instance, relapsing fever can be produced again and again in the same animals after inoculations. Experimenters more recently, from these and other results obtained by inoculating animals with attenuated bacteria of different infectious diseases, have sought to furnish proof that similar inoculations in man would be followed by similar immunities.

The fact that individuals who have once passed through certain infectious diseases, or a mitigated form of them, are afterward not susceptible to the infection of these diseases, may be regarded as a strong evidence of the possibilities of such immunities being obtained by inoculation of the attenuated viruses of infectious diseases. While working in this line Pasteur brought forward the results of his inoculations against hydrophobia. Both his experiments and his results have aroused adverse criticism from those whose ignorance of the subject forbade any fair discussion of his methods or conclusions, as well as by those who presumably were competent to sit in judgment upon him; as a consequence the profession has been slow to accept his conclusions.

It would seem, however, that the report of the English Commission appointed by Parliament to investigate the subject, composed as it was of the best English observers, must at once put at rest all doubts. This report is all the more interesting and valuable because it is the first that has been made by impartial and competent authority upon Pasteur's work. The report of the Commission declares that it is certain that Pasteur has discovered a method of protection against hydrophobia comparable to that given by vaccination against smallpox; and in their opinion it is "difficult to overestimate the importance of the discovery," and that while not every case which he has treated has escaped, yet a large proportion of cases have been absolutely cured. The report of such a Commission will not only give to Pasteur's researches and experiments an authority which they have not before had, but it will also give an impetus to similar investigations in other directions, for a method of inoculation is presented by his experiments by which it may be possible to prevent other diseases in man. The diseases which up to the present time have been proven to be prevent-

able by inoculation, are vaccinia, variola, splenic fever, and if we regard the report of the English Commission conclusive, hydrophobia.

All the explanations that have been given of the immunity afforded by inoculation are unsatisfactory and at best only conjectural. It seems possible that a person who survives an infectious disease has in his struggle with it acquired the power of resisting such infection by some as yet unknown modification in the chemical constituents of his tissues, and that acquired immunity from inoculation is on the basis of the introduction of an infection in minute quantities until such a chemical change has been reached; but all such explanations are only suggestive, while it has been proven that inoculation is protection in a few diseases, it is reasonable to infer that those diseases in which one attack is protection against a second, that preventive inoculation is possible, and it opens a wide field for investigation and experimentation.

THE CAUSES OF ABNORMAL TEMPERATURE IN DISEASE,

is the third problem to which I invite attention. What is fever? is a question that still remains unanswered, and which is constantly pressing itself upon the clinical observer for solution. Few subjects have been more at the mercy of theorists, or been made more the sport of ingenious minds. In discussing it we are primarily led to a consideration of the animal heat of normal conditions. It is comparatively easy to reach reasonable and, indeed, demonstrable conclusions on the physiology of this subject up to a certain point. Beyond this we are confronted with difficulties which, with our present means, we are unable to solve with any approach to success or satisfaction. In regard to the causation of a certain amount of manifest energy, in the form of heat, as exhibited in the body of animals, there appears to be no reasonable objection to the view that conditions which result in the manifestation of such energy outside the body shall exhibit similar calorific effects within the tissues. It is well established that foods exhibit their heat potential in the changes incident to the production of water and carbon dioxide, and these demonstrations of chemical force are true combustions, and yield stored heat just as certainly as when like changes occur apart from the living tissues.

In the light of present physiology it appears almost self-evident that the prominent factor of heat production exists in metabolism, and that metabolic processes consist in the liberation of heat stored in the food introduced into the body. The inadequacy of these changes alone to account for the maintenance of an equable temperature of the body during the extraordinary and varying conditions of man's environment also seems apparent.

Very early in the investigation of this subject one becomes conscious of the imperative necessity for the existence of some regulating mechanism. I must, however, say just here, that I have never been able to convince myself, from analogy or otherwise, of the necessity for a nervous mechanism which shall give rise to heat-production without corresponding chemical changes either general or local. Such a theory to my mind calls for effects without a cause. I cannot, in other words, conceive of any reasonable evidence against the view that physical processes must be governed by the same laws and be productive of the same results, in every instance and under all conditions.

This brings us squarely to the question, Is the hyperpyrexia of fever an extraordinary manifestation of animal heat, governed and controlled always by the same mechanisms, differing only in degree? Or, are the conditions other than those of simple pyrexia, requiring special mechanisms for its development? In the study of the literature of this subject we find that increased calorific manifestation resulting from an exaggerated body metabolism was, for a long period, deemed a reasonable explanation of the temperature of fever. This view was based upon the fact that food and tissues represent a certain and definite potential, that in the metabolic processes this is exhibited as kinetic energy in the form of heat. Later these changes were found to be under certain nervous control, and special mechanisms were demonstrated as regulating metabolism without offering any objection to the combustion theory of animal heat and of fever as well; within a comparatively recent period the theory has been advanced that pyrexia results from a disturbance of the normal equilibrium between the production and dissipation of heat.

The views advanced by Maclagan and others on this subject are essentially as follows: 1st. That in the ordinary production of animal heat, the influence of the nervous system is neither essential nor exhibited, even though the pyrexia be considerable. 2d. That as soon as the disturbance induced by fever occurs, or the normal balance between heat production and heat dissipation is reached, nervous mechanisms are called into requisition and hyperpyrexia results. 3d. That the contagium of fever consumes the proteids designed for tissue repair.

It has been pretty conclusively shown by the experiments of Dr. Wood that an inhibitory control—a check—is in constant supervision over ordinary heat production, and he has located with more or less definiteness a cerebral heat centre, the normal inhibitory action of which is reflexly withdrawn in fever, and the resulting increased metabolism is exhibited in increased temperature. Dr. Wood has performed many carefully conducted experiments on animals in the settlement of the question: "Does fever consist in an increase of heat dissipation from the body or in an increased heat production?" It is difficult to understand just how the body can continue to dissipate heat for any prolonged period without a corresponding heat production.

Thus far experimental physiology has proved an efficient help in determining the mechanism of fever, but all attempts to isolate the spirit which primarily actuates these mechanisms have left us groping for an agency which we have thus far found too subtle for recognition.

What causes the peripheral stimulus which Dr. Ordt and others believe is carried to the spinal thermogenetic centres and there translated into influences which are transmitted to the tissues, to increase or diminish those transformations upon which depends the amount of heat produced? What is this morbific principle which so influences the cerebro-spinal centres of Brodie, Hitzig, Eulenburg, Landois, Wood, and others, as to inhibit their action on the heat reservoirs of the tissues by increasing chemical metamorphosis? Such questions as these force us back to the original proposition—What is fever? One must plainly see the futility of attempts to answer this question until some more satisfactory definition can be given, than that fever is an exhibition of phenomena or symptoms of which high temperature is the most prominent. Fever is a something which we have not yet

grasped; which produces those symptoms or *effects* which we have been accustomed to regard as its *cause*. Beyond this we actually know nothing, except that the result of its presence is manifested largely, at least, through the nervous apparatus; and knowing so little of its nature its causes must be speculative. What is destined to come out of the work in the direction in which the medical world is now active remains to be seen.

The establishment of a special nervous control over heat production will unquestionably remain an important and leading idea in the physiology of pyrexia at least. The disposition evinced by various observers to regard the febrile conditions as produced by a specific cause—one entirely distinct and apart from normal phenomena—has not as yet modified in any very essential degree the views entertained by clinicians of the earlier part of the present century. Unsatisfactory and incapable as the chemical theory is in accounting for certain temperature manifestations, it must remain the leading and influencing thought on this subject, until something essentially and radically different from that afforded by the results of present experimenters has been suggested.

We may sum up our knowledge on this subject as follows:

1. Chemical transformations produce definite results, whether occurring within the tissues or outside the body.

2. The body takes cognizance of the potential of food, and during certain changes, which are true combustions, a definite, unalterable value is exhibited as kinetic energy in the form of heat.

3. Muscular action is an insignificant factor in the establishment of animal heat, excepting as it excites metabolic energy.

4. The varying circumstances of man's environment necessitate some heat-regulating mechanism to preserve the conditions of homogenesis.

5. The evidence of the existence of a regulating mechanism operating independently of chemical change is insufficient.

6. There appears to be no reason for regarding the increased heat-production of fever as requiring mechanisms other than those acting in normal rise of temperature.

7. While anatomical difficulties interfere with the complete isolation of such ganglia, the existence of two cerebral inhibiting heat mechanisms has been fairly established; as much may be said of like spinal ganglia.

8. The production of heat in fever is in exact consonance with metabolism and the chemical changes are under the control of the heat mechanisms through the connection between the nervous and the vascular apparatus.

9. In the present state of our knowledge we can only theorize as to the identity of the material in the circulating media of the body, which institutes the primary irritation in febrile conditions. That it is inconstant in composition or nature, there is abundant reason for believing. That it is microbic in every instance, I am unprepared to admit. We certainly must have a clearer idea of what fever is before we accept or seek to explore the action of poisons or microbes in producing it. We are too prone to seek for the causes of phenomena before we have determined the precise nature of the phenomena themselves. It is evident that the bacterial pathology which is dominating all the teachings and investigations of the present day, has as yet, given us no clew to an explanation of the causes and phenomena of fever.

The length of time already occupied in this discussion will compel me to be brief in my consideration of our last problem, viz.:

THE EFFECTS OF ANTIPYRETICS IN THE TREATMENT OF DISEASE.

During the last decade, since the thermometer has become a part of the physician's "armamentarium," antipyretics have taken a more prominent place in the treatment of disease than ever before, probably for the reason that by it we are able more readily and accurately to determine their effects upon the body temperature. If we accept the view that high temperatures cause destructive metamorphosis of tissue, a view which in some unaccountable way has gained almost universal acceptance—the importance of reducing high body temperatures in all diseases cannot be overestimated, and we are justified in resorting to the most powerful antipyretic agents to accomplish it. But there is very little, if any, evidence that febrile temperatures of 106° or 107° cause any serious injury to the body; certainly that no such dangerous destructive changes take place in the blood and solid organs as we have been led to suppose from the writings of continental observers. I can find no clinical or experimental evidence to sustain the popular doctrine of Liebermeister and others, that the grave symptoms in fever, the symptoms which usually render a prognosis unfavorable, are referable to a high temperature range. In fact, the evidence of the so-called parenchymatous changes and of the grave febrile symptoms in acute infectious diseases, are as well marked and as often present in cases where the temperature-range at no time reaches 103°, as in those cases which are attended by very high temperatures. In a series of cases of typhoid fever of low temperature, often subnormal, which have come under my observation during the past year, in which the ratio of *mortality* was unusually high, I was surprised at the development of so many of those very grave symptoms which I have been accustomed to regard as due to the effects of high ranges of temperature; from these, and similar observations in other acute diseases, I have come to the opinion that there is no necessary relationship between the other febrile symptoms and the temperature range.

It is evident that we have passed through the period of enthusiasm in the antipyretic treatment of disease, and already prominent workers have come seriously to consider whether the dangers of hyperpyrexia have not been over-estimated, and the question is being asked, May not the high temperature in disease, especially in infectious diseases, be a conservative process. From statements already made, it is evident that elevation of temperature is far from being all that there is to fever.

A pertinent question for every practitioner of medicine to put to himself is, How much has he accomplished by the use of antipyretics, in the arrest and safer conduct of disease, and are there no dangers attending their employment? Whatever answer may be given to these questions, I am convinced that the heroic use of antipyretic measures which within the past few years has come into such general use—the one idea of the modern therapeutist being to reduce temperature at all hazards—has a side of danger that should not be lost sight of. If the temperature range in a case of fever or pneumonia is about

105° or 106°, and can readily be reduced by mild antipyretic measures, the condition of the patient at the same time being made more comfortable by their use, I should most certainly recommend their employment. But when powerful antipyretic measures are required to effect temperature reduction, and its reduction is only temporary, I question very much their beneficial effects; in fact, I am quite confident that such reductions are obtained only by an expenditure of vital force on the part of the patient, which largely diminishes his chances of ultimate recovery, especially if the hyperpyrexia has been long continued, for I have frequently noticed that their daily employment, for a prolonged period, has been followed by grave nervous phenomena, and the evidence of the most extreme cardiac failure, greater than could have been caused by the high temperature alone. I think no one whose experience is at all extensive in the use of antipyretics in the treatment of acute infectious diseases, will for a moment claim that they have any power in shortening their duration or greatly modifying their severity.

Time will not allow me to enter into a detailed account of the different antipyretics now in use, to compare their relative merits, nor to theorize as to their mode of action. In a general way they may be divided into two classes, the application of cold to the surface and the internal administration of antipyretic drugs. The mode of action of the two classes is evidently not the same, although they both may effect the reduction of temperature. Whether they act by diminishing heat production, or by increasing heat dissipation, is still undetermined; for every day's experience teaches that sometimes when antipyretic drugs act badly or inefficiently, cold applied to the surface in the form of baths or packs, often accomplishes the desired results in the most satisfactory way, and *vice versâ*. It has seemed to me that the beneficial action of antipyrin and antifebrin is not so much due to their power of controlling temperature, as to their tranquillizing effects upon the nervous system. Dr. Wood, from his experiments on animals, concludes that antipyrin diminishes heat production and heat dissipation, and that its action on the bodily heat is entirely independent of any influence on the circulation; that it probably acts through the nervous system directly upon the chemical movements of the organism.

Clinical experience has taught me that opium is often one of our most efficient and reliable antipyretics. The old custom of administering Dover's powder in small doses, at stated intervals, throughout the course of a typhoid fever, undoubtedly had its origin in the power of opium to control temperature by its tranquillizing effects upon the nervous system, as all discussions in this line must at present be theoretical and unsatisfactory. I close the consideration of this problem, with the practical question: If temperature reduction does not shorten the duration, mitigate the severity, or avert serious complication in disease; and if the ratio of mortality is not so diminished as to encourage us that we are making advances by antipyretic measures, on *what basis are we justified in their use?* Evidently, only on the basis that by their use we relieve one of the many phenomena of fever. If this can be accomplished without serious loss of vitality, or at the expense of the reserve force of the patient, we are justified in their use; but do not let us imagine that by reducing temperature we are controlling fever.

In review of the subjects which I have brought to your notice this evening, it is evident that the work of to-day is gradually rescuing medicine from the realm of wilful and unreasonable speculation, and is establishing it on a basis of new facts. Yet I would warn those who are in haste to elevate the experimental above the practical, that the experimental will never alone be able to accomplish the great work that is ever before the practical physician. We cannot safely forsake the rich storehouse of clinical observations that have been gathered by so many master minds, and withdraw into the recesses of the laboratory; for, although in the work of the laboratory we hope to find the solution of many of the problems with which we are now struggling, it must be remembered that the special field of medical investigation is, and ever will be, the study of disease in its activities. Experimental work, even in the study of the causes of disease, must always be onesided, the whole number of its causes can only be studied and understood at the bedside of the patient. The great treasures of clinical observations must ever be the basis of true medical advancement. It is here that medicine is to find her firm and enduring foundations. Let us then labor without rest, in the laboratory, at the bedside, and in the deadhouse, for the solution of the great and vital problems that are before us in every branch of our science, and the full benefit of our labors later generations will come to know and enjoy.

ORIGINAL ARTICLES.

SÄNGER-CÆSAREAN OPERATION NECESSITATED BY A PECULIAR CAUSE AND ACCOMPANIED BY UNUSUAL COMPLICATIONS.

BY R. B. NORMENT, M.D.,
OF HAMPDEN, MD.

ON the 16th of December, 1887, I was called to see S. C. M., aged twenty-six, white, unmarried, who was at that time eight months pregnant. She was troubled with violent headache and a hacking cough, on account of the former of which, she consulted me. The patient was a small hump-backed woman, who had been afflicted with Pott's disease of the spine since early childhood; and she told me that she still had many sores on her back. The deformity of the patient presented itself to my mind as rather remarkable, in that when she was standing, the ensiform cartilage and pubes were nearly on a level.

A careful examination made on the 18th revealed the following facts: Patient is 49 inches high, and very thin; there is marked kyphosis the result of Pott's disease, involving the entire dorsal region (indeed it seems to me that the entire spinal column below the vertebra prominens is involved); the lower ribs are in the upper pelvis; the uterus hangs pendulous over the pubes; the symphysis lies a little posterior to the femurs when the patient is standing; the vulvar opening looks slightly backward; there is marked contraction at the lower strait, the distance between coccyx and pubes being about two inches, but I fail to discover any contraction in the upper strait: the ensiform cartilage is much too near the pubes, the distance between the two being estimated at 6 to 6½ inches (in reality it was something less;

measurement after delivery showing it to be but 5¾ inches).

These facts led me to fear that I would have great and serious difficulty in delivering my patient when the time of her labor had arrived. The position of the uterus was what presented itself to my mind as the greatest difficulty I would be called upon to combat, hanging pendulous when the woman was standing, the fundus uteri being in a plane eight and a half inches below the tip of the coccyx, lying between her thighs when she assumed the recumbent posture. There was no room to lift up this anteverted uterus, for the sternum was far anterior to the pubes; the patient being in a recumbent position, a line drawn from the pubes to the sternum would have made an angle of about fifty degrees with the horizontal plane.

The case presented itself to me in this light: In order to accomplish delivery *per vias naturales*, it will be necessary to make the entire body of the fœtus describe an arc of a circle equal to 270 degrees or thereabout. As there was contraction at the inferior strait sufficient in my judgment to necessitate perforation or crushing of the fœtal head, I thought the hope of accomplishing this would be infinitely small.

After deliberating over the matter for a day or two, during which time the patient was being treated for her headache and cough, I concluded that it would be best to prepare the patient and her family for the Cæsarean operation.

The general condition of the patient was about as bad as could well be imagined. In addition to the great deformity above mentioned, I found the lower extremities œdematous from the toes to the hips; the urine highly albuminous, and containing *hyaline* and *fatty* casts in large numbers. There were two open suppurating sinuses in the lumbar region, one just below the anterior superior spinous process of the left ilium, and one in the anterior surface of the right thigh about six inches below the hip-joint. The patient could not say just how long *these* had been discharging, but there had not been a time during a space of more than twenty years when she was free from the discharge of pus from a sinus *somewhere*.

There was one very curious circumstance noticed at the examination. When the finger was passed into the vagina, it seemed that in whatever way it was directed it came in contact with a bowel filled with feces. I am of the opinion that the sigmoid flexure of the colon was in the pelvis. The patient was ordered free purgation with salines, as well as frequent enemata. For medicine she took iron, quinine, and bromides in various combinations. By these measures she was rendered more comfortable for about twenty days, when symptoms of uræmia set in, headache, dizziness, blindness, tremor, and nervous twitchings and great restlessness during sleep; limbs more œdematous than ever; urine scanty, albumen and casts abundant. Eclampsia seemed imminent. She was ordered large doses of pulv. jalap comp. (℈j every three hours) until violent purgation ensued. Potassium bromide was freely administered, and patient kept for a few days upon a liquid diet. When she had been very freely purged the symptoms ameliorated to a marked degree, and I ordered tinct. ferri. et ammon. acetat. ʒj every three hours, and potass. brom. ℈j at bedtime and as often during the day as might be required in order to keep her headache in abeyance. Her condition again improved.

In the meantime all things were prepared for the operation whenever emergency might demand. The family and patient were plainly told the seriousness of the situation as well as the dangers of operative procedure. To the former no hope of the patient's recovery was held out. I did not, however, deem it wise to tell the patient that I thought it absolutely impossible for her to recover, though I plainly made known to her the *danger* she was called upon to encounter. The patient and her family readily gave their consent to any operation which might be deemed advisable.

I visited my patient daily from the time I was first called to the time of operation. At my visit, January 12, I was informed that she had had some pain simulating that of labor during the previous night, but there had been no return of the same for twelve hours. There was no further return of pain during that day or the following night, but at four P. M. on the 13th, regular dilating pain set in. Having lasted for upward of two hours, I was sent for, and found the cervix slightly dilated and soft; the patient, however, was suffering little pain. I was informed that her pains had been regular and frequent, "real down hard pain," until she was told that I was coming, when she became nervous, and the pains ceased for some time.

In consideration of the fact that the patient was very weak, that she had already suffered pain for three hours, that, should her labor occur later in the night, the difficulty of securing assistants would be greatly increased, I determined to operate as soon as assistants could be procured, and the patient prepared for the operation.

The pubes were shaved, the abdomen washed thoroughly with soap and water, and covered with a towel, wet with a solution of hydrarg. bichlor., 1 : 2000. The sinus under the iliac spine was washed out with the bichloride solution, and plugged with absorbent cotton, and a fold of linen wrung from the bichloride was placed in the groin; that in the thigh was treated in the same manner, except that it was covered with a piece of India-rubber plaster. The bladder and rectum were emptied, and the vagina washed out with a two per cent. solution of carbolic acid.

After this preparation, I proceeded with the operation in the presence and with the assistance of Drs. Williams, Mitchell, and Smith, of Hampden,

and Prof. Tiffany, of Baltimore. To the last named I feel myself peculiarly indebted, not only for the honor of his presence, but also for his able counsel and assistance during the entire case.

The operation determined upon was that of Sänger. The only circumstances worthy of special note were the behavior of the uterine tumor and the fact that the incision into the uterus was directly on the placenta. The uterus, by its own weight, protruded through the abdominal incision, and lay on a disinfected towel between the patient's thighs. The membranes were still intact; and instead of following the advice of Sänger and others to rupture them at this stage of the operation *per vaginam*, I followed that of Charpentier, and left them intact to the last moment. I was led to do this not on account of any advantage to be derived from such a course in an ordinary case, but from the fact that I would have had to turn my patient on her side in order to reach the membranes *per vaginam*.

It was difficult to raise the uterus enough to incise conveniently the anterior wall; but believing in the advantage of this position for the incision after the completion of the operation, I determined to make it nowhere else. I was unable to discern the position of the placenta, and the incision was immediately over it. I think the unruptured state of the membranes at this time was an exceedingly fortuitous circumstance; for the cavity of the uterus being full, when the organ was incised, instead of contracting on the placenta, as the lips of the wound retracted, the placental attachments were broken up to a large extent. The placenta was quickly separated from the left side of the incision, the membranes ruptured, and the child seized by the feet.

The child was extracted in an asphyxiated condition, the heart, however, was still beating. While Dr. Williams held the rubber cord controlling hemorrhage from the uterus, and I was emptying that organ of the secundines, and by massage bringing about firm contraction, Drs. Tiffany and Smith succeeded in resuscitating the child.

The uterine wound was closed with two rows of stitches, the peritoneal layer with the continuous suture, and the muscularis with interrupted sutures—fourteen in number. The material used for suturing was carbolized silk. The uterus, firmly contracted and free from any leakage, was returned to the abdominal cavity,and the abdominal incision closed.

I cannot state the exact time of operation, but two hours and a quarter were consumed between the placing of the patient on the table, and her return to her bed, with the wounds fully dressed, and her body cleansed. About twenty minutes of this time were taken up prior to delivery, the administration of the anæsthetic consuming part of this. Chloroform was used as the anæsthetic on account of the cough, ether, from its well-known irritant effects, being deemed inadvisable.

The patient was placed in bed, surrounded with bottles of hot water, and a few minims of Squibb's fluid extract of ergot, along with some whiskey, were administered hypodermatically. After complete recovery from the anæsthetic, small doses of tinct. opii deod. and fluid extract of ergot were ordered. Reaction was fair, and the patient was allowed milk in moderate amount.

Twelve hours after the operation, patient was conscious, cheerful, comparatively free from pain; pulse 104 and feeble, temperature normal, lochial discharge normal in amount and appearance. There was one really bad symptom at this time, viz., the secretion of urine was very scanty, the catheter drawing but two ounces.

During the next twelve hours she excreted about the same amount, and despite stimulation the heart's action became more feeble, temperature $99\frac{1}{5}°$ F.

From this time on the patient steadily declined, the symptoms of uræmia predominating. Death occurred on the 16th at 2.30 P. M., sixty-two hours after the operation. There was no vomiting, no hiccough, no abdominal distention, no febrile movement, her temperature never having risen above $99\frac{1}{5}°$ F. Increasing œdema, increasing feebleness of pulse, increasing coma, were all that I could see. It is needless to report the treatment of this condition; purgation with stimulation and fluid nourishment were given a fair trial, but to no avail.

Was this operation a success or a failure? For my own part, although under the circumstances my opinion may be somewhat biassed, I would class it among the successful, rather than the unsuccessful, precedures of obstetrics. My opinion before the operation, was, that it afforded the only means of emptying the uterus, ante-mortem; and I think, had any one else entertained a contrary opinion, he would have changed his mind had he seen the condition of affairs when the abdomen was opened. This cavity, of course, was not kept open long enough to note the position of the abdominal organs, but it was noticed that the ligature around the lower portion of the uterine cone was, while *in situ*, *in contact with the liver*. I had never expected to save the mother, but operated early in order to give her the advantage of any slender hope of recovery which might remain. The child was delivered alive, and still lives—one human life was saved by means of the operation. The history of the case, following the operation, would lead me to hope for better things in a subject reasonably healthy, although seriously deformed.

Here I would like to add my humble opinion as to the place the Cæsarean operation, or one of its substitutes, should hold in the practice of midwifery. It is beyond the province of an article like this to enter into any extended discussion of this important question, and to be brief, I will merely formulate my ideas.

I believe the verdict of the near future will be, that when there is such disparity in size between the maternal pelvis and fœtal head, that the latter cannot engage in the upper strait, the Cæsarean operation is indicated; and that whenever the true conjugate is less than two and a half inches, in ordinary hands,

Cæsarean section is safer than craniotomy or cephalotripsy. Barnes and Jaggard may affirm that in the latter operations the maternal danger is practically *nil*, but the writings of other authorities just as reliable as they, fail to confirm such a statement. Verrier affirms that even Pajot has not succeeded in saving life when the conjugate was under two inches, and Charpentier speaks of thirty-seven maternal deaths in 119 cases (the minimum conjugate being 2.7 inches), as "fairly satisfactory results," from the use of the cephalotribe.

I can never feel that operative interference, which takes into account the interests of the child as well as those of the mother, is to be lightly considered from a moral standpoint, and for one, I will never *willingly* apply a destructive instrument, of any sort, to the head of a *living* child, free above the pelvic brim, and it seems to me that no words could express the consternation and chagrin of one, who was compelled to resort to the Cæsarean operation, after failure of one or other of the destructive operations.

As to the time of operation, common sense, as well as sound surgical judgment, and clinical experience, teach that if the operation is to be performed at all, it should be done before the mother has been exhausted by a protracted labor.

THE TREATMENT OF THORACIC ANEURISM BY IODIDE OF POTASSIUM.

By O. T. SCHULTZ, M.D.,
of Vernon, Ind.

In connection with the very valuable paper on the "Treatment of Thoracic Aneurism by Iodide of Potassium," by Prof. Macdonald, in The Medical News of January 7, the following report of a case of aneurism of the root of the aorta may be of interest, in which the treatment by iodide of potassium procured relief of all the distressing subjective symptoms, and a great improvement in the objective signs for a number of months, and when the treatment was stopped through ignorance and carelessness of the patient, and hard work was continuously engaged in, a new pointing of the aneurism externally occurred, and finally rupture into the right lung and death, while the post-mortem showed what immense amount of repair had being going on, and in what it consisted.

On April 28, 1887, a negro man, probably fifty years of age, presented me a card from Dr. Ramsey, of this city, which informed me that this was an interesting case, and would well repay the trouble of an examination. The patient, a strongly built man, was much emaciated, walked with a tottering, halting step which scarcely left the ground, and seemed much worn out by the short walk from Dr. Ramsey's office, his face expressed great and long continued suffering. He stated that about six years ago he had been for a long time troubled with pain in his joints and limbs. The joints had swelled, first one and then the other, and he had also had some fever at the time. Since then he had dull, sore pain in his right chest, and especially under the sternum, severe enough at times to compel him to take to bed. He had also been having more or less cough, and at times dyspnœic seizures, especially at night. About four months ago a tumor first appeared upon his outer chest wall. For some time past the symptoms had been so troublesome that he had to give up all work and seek medical advice. He further stated that he was under Dr. Ramsey's care, and that he was fast improving, his cough almost gone, his pain much less, no more dyspnœic attacks, his strength was increasing, and that he ate and slept well.

The pulse at the wrists was too indistinct to count. The heart's action was regular, equal, weak, 96–100. The apex beat was in the fifth space, a little internal to the nipple line; the impulse was weak but distinct. The thoracic wall presented no discoloration or enlarged veins. Over the middle of the sternum in the region of the third and fourth cartilages and spaces, there was a tumor the size of a small orange, with a rounded base and a sharply projecting apex. Toward the right of this base the thoracic wall was markedly bulged out. Well-marked pulsation could be seen in the bulging to the right of the sternum, and could be felt, but not seen, in the tumor over the sternum. The sternal tumor was round, about two inches in diameter at base; the bony walls arched up and left an open central spot one inch in diameter with well-marked bony margins, through which projected the pointed apex, which was very soft, and its coverings seemed greatly attenuated. The heart sounds over the apex, over the pulmonary orifice, and over the tricuspid valve below the sternal tumor, were weak but distinct. The heart's action was equal, regular, somewhat accelerated; the rhythm was normal. Over the aortic orifice the sounds were loud, four to five times as loud as over the pulmonary artery; a powerful impulse was present, and a distinct systolic but no diastolic murmur; the murmur was with the first sound, and almost replacing this; the second sound was loud, clear, and distinct; the intervals also were free from any sound or murmur. Pulsation over tumor was synchronous with that of the heart, and stronger to the right of than under the sternum. A systolic murmur was present over the tumor, but whether this was propagated from the aortic orifice, or whether it originated in the tumor, cannot be made out. There was absolute dulness for a hand's breadth to the right of the sternum, over the site of the bulging. The heart's limits seemed normal, except to the right, where the cardiac merged into the tumor dulness.

I diagnosticated thoracic aneurism, and judged the seat of the same to be either the root of the aorta, or the right auricle of the heart. I ventured to recommend to Dr. Ramsey that the patient be put and kept on large doses of potassium iodide, and gave it as my opinion that the patient was probably syphilitic. Dr. Ramsey agreed with me in this opinion, and told me that his patient was now taking five grains of the iodide four times a day, and that

he thought the very manifest improvement must be attributed to this agent.

Sept. 4. Dr. Ramsey invited me to see this case with him. He informed me that the negro had taken the potassium iodide for several months, that he had improved during this time, in every respect, that the sternal tumor had disappeared and the defect in the bone had filled up. In fact, he had considered himself well, had ceased reporting himself, had stopped the medicine, and had been engaged all summer in heavy manual labor, that even yesterday he had seen him raising dirt from out of a deep ditch. Early this morning while still in bed a violent hæmatemesis had taken place, by which he lost three pints of blood. This hemorrhage had ceased spontaneously. We saw the patient at 5 P.M., and found him in a partial stupor, the pupils were normal, the pulse was hard and synchronous at both wrists. Pulsation was much stronger in the right supraclavicular space than in the left. He had no pain, only slight cough and felt comfortable. The sternal tumor had disappeared. The lateral prominence had spread upward and to the right, its highest point being in the upper part of the right thoracic wall, where the second rib had been absorbed. A violent hemorrhage recurred shortly after our visit, in which the patient died.

Post-mortem.—Present, Drs. Powell, Pearse, Ramsey, and Schultz, all of Mt. Vernon. Cadaveric rigidity well marked, body was well nourished, good panniculus adiposus. The contours of left thorax were normal. On the right side the thoracic wall was considerably bulged out, the prominence beginning two inches from the right margin of the sternum and extending four inches transversely, and beginning two and one-half inches below the clavicle, and extending six and one-half inches directly downward. The bulging was considerable, at least one inch in height, and attained its maximum at its upper outer part, external to the nipple line, where it made a sharp boss two inches in diameter and two inches high, and where it had eaten through the rib. Great difficulty was experienced in removing the sternum and cartilages, owing to the very firm and very extensive adhesions on their outer surface. The former defect in the sternum was marked on its anterior surface by a slight depression of normal color with the balance of this bone, and on its posterior surface by a rough, dark-red spot the size of a silver half-dollar. We found that with the sternum and cartilages we had also removed a large part of the anterior wall of the tumor. This tumor occupied the entire front of the upper half of the right thorax and passed over to the left to become continuous with the base of the heart. It was firmly adherent in front to the wall of the thorax, free at its lower and lower posterior part, and so firmly attached at its upper and upper posterior part with the pleura and lung, that it had to be cut out from its neighboring organ, and removed with portions of the lung and ribs attached. It had broken into the right lung at its upper part and the lung tissue was filled with clotted blood. The left lung was not adherent to the tumor. The apex and body of the heart were easily stripped of their covering, but at its base the tumor formed one continuous mass with the heart, and here the pericardium seemed to enter into the formation of the wall of the tumor. The lower half of the tumor was filled with a mass of fibrin of a light-red color, disposed in layers of unequal thickness. This mass was nearly two inches in thickness, and could readily be peeled off from the tumor wall, and then presented at its lower surface the outline of the tumor; its upper concave surface with the upper walls of the tumor had formed the present cavity of the latter which held about one pint and was filled with loose recent clot. The lower walls of the tumor were very thick, dense, and non-adherent, the upper walls were thin, broke down easily and were firmly adherent to the surrounding organs.

The heart was normal in size, form, and consistency, its chambers were of normal size and shape. The valves were normal, except the aortic semilunar, which were slightly thickened, very few and small calcareous granules were present upon these valves and at this orifice, these valves seemed slightly incompetent. Just above the valves the right side of the aortic wall presented a large hole which opened into the aneurismal sac. The root of the aorta and its remaining sinuses seemed to be somewhat dilated, but above the sinuses the calibre of the vessel was not increased. The opening occupied the place of the right posterior sinus of Valsalva, being removed not much more than one-quarter of an inch from the orifice of the coronary artery. It was in the shape of an irregular square and measured three quarters of an inch in breadth and three-eighths of an inch in height. Its boundaries were: the lower, the base of the heart, an almost straight line, the two lateral, the walls of the aorta, also straight lines, the upper, also the aortic walls, irregularly convex. The floor of the opening was smooth, presenting a shining, polished appearance, the walls of the aorta as they constituted the lateral and upper margin of the opening were smooth, well rounded, shining, and showed no signs of ulceration. The upper wall of the aneurismal sac was attached to the aorta, more than an inch above the opening in this vessel, and hence the aortic wall here hung as a screen between the cavities of the aneurism and of the aorta. This portion of the wall of the aorta was also free from disease as far as could be judged by sight and touch. The other vessels of the heart and their orifices were normal.

From a study of this very instructive case we draw the following conclusions: The treatment by potassium iodide had very rapidly relieved the patient of great suffering, and had restored him to a relatively healthy condition; it had stopped the onward progress of the disease; it had prevented rupture through the sternum which at one time was imminent; by the amount of reparative work done in the older part of the tumor, this had been forced into a new direction, when it again began to grow; by a steady continuance of the treatment, by careful diet and rigid abstinence from work and exertion of any kind life might have been preserved a much longer time and the inevitable termination postponed much longer.

ICHTHYOL IN SURGERY.[1]

BY EDWARD MARTIN, M.D.,
OF PHILADELPHIA.

ICHTHYOL was first described by Schrötter, and used in the treatment of skin diseases by Unna. It is obtained as a clear yellow-brown oil, by distilling bituminous matter found in Tyrol, and containing the fossilized remains of fishes and marine animals. By the action of sulphuric acid on this distillate, and subsequent neutralization with soda or ammonia, either the sodium or ammonium sulphichthyolate is produced. The latter compound is preferred by Unna.

The ammonium sulphichthyolate is a reddish-brown, clear, syrup-like liquid, of burning taste and odor, soluble in water, making a clear red-brown solution; also soluble in equal parts of alcohol and ether.

The ichthyol preparations are characterized chemically by their richness in sulphur (ten per cent.), so intimately united that it can only be extracted by complete decomposition (Lartigeau); they easily take up oxygen, acting as powerful reducing agents (Baumann).

Clinically, the ichthyolates are described by Unna as being powerful antiphlogistics, causing anæmia and rapid subsidence of swelling in all tissues. This antiphlogistic effect is ascribed to the drug's action on the endothelium of the bloodvessels, depriving it of oxygen by virtue of its reducing properties, and contracting the lumen of the vessels. This explanation is not, perhaps, entirely satisfactory, but physiological studies have not yet given us a better one. The cornifying effect of the drug on the epithelium of the rete is undoubted.

Surgically, what are the indications for the drug? Lartigeau states that it is indicated in all subcutaneous and inflammatory tumefactions, œdemas, vascular dilatations, incipient furuncles, and local manifestations of rheumatism. Elliot praises it highly in burns of the first and second degree (five per cent. solutions in water), as producing rapid subsidence of pain and inflammatory symptoms. He finds its application to obstinate varicose ulcers associated with eczema rubrum (sodium compounds, three to five per cent.) at times productive of marvellous results. In his hands it is also useful in cicatrices, and in a few cases of rheumatism and neuralgia has given immediate and marked relief from pain. Schweninger states that in rheumatism, lumbago, ischias, tic, gout, and migraine, local applications of ichthyol act more powerfully in allaying pain than any known medication.

Lorenz is astonished at the fabulous efficacy of the drug. In acute and chronic joint rheumatism, acute muscular rheumatism, mastitis, panaritis, and contusions, a few rubbings with pure or fifty per cent. ichthyol compounds are peculiarly successful in allaying pain and hastening healing. In chronic and acute joint rheumatism relief often follows a single rubbing, while this is the rule in acute muscular rheumatism. The pain of gout disappears, the shining red skin becoming quickly wrinkled. A beginning mastitis or panaritis is always aborted, or if fully developed the pain is much relieved. Its prompt use prevents the discoloration following contusions. It immediately allays the pain of a burn, and prevents blistering. Finally, a ten per cent. solution hastens the cicatrization of badly healing ulcers.

Loring dilutes with water when the pure ichthyol compound cannot be borne and prevents irritation of the skin by careful washing and drying before each application.

Von Nussbaum states that a single application of ichthyol one part, water four parts, lanolin five parts, has allayed the itching of eczematous ulcers which had resisted all known applications for weeks and months, and promptly brought about rapid cicatrization on being continued a few days. Arthritic pains, which for weeks have made day and night miserable, are relieved at times in one-half minute after the application of a strong ichthyol ointment. In erysipelas it produces results obtainable by no other means, namely, the immediate arrest of the disease.

Von Nussbaum's treatment was first the thorough disinfection and drainage of the wound, then, if the disease continued to extend, over its whole surface a thick layer of ichthyolate and vaseline, equal parts, was spread and covered by a layer of ten per cent. salicylated cotton. The erysipelas advanced not a line further and in a single day the swelling disappeared, and the red, shining, puffy surface became yellow, brown, and wrinkled. This remarkable effect von Nussbaum ascribes not to the influence of the drug on Fehleisen's cocci, but rather to a change produced in the tissues by virtue of which they cease to favor the growth of the microörganisms.

Stelwagon has had excellent results in the abortion of furuncles by ichthyol preparations. D. Hayes Agnew considers the ichthyol preparations more powerful than any known therapeutical agent in bringing about reduction of inflammatory enlargements, and has had particularly good results in recently enlarged lymphatics. He uses sulphichthyolate of ammonia and iodide of lead, equal parts, applied generously and covered in by oiled silk.

The writer has used ichthyol in:

(1) Six cases of cervical adenitis, with absolutely no relief; cure being subsequently brought about by iodine or the knife.

(2) Fifteen cases of marked inflammatory induration of the subcutaneous tissues, with invariably a

[1] Read before the Philadelphia County Medical Society, January 25, 1888.

speedy, and in some cases, almost magical reduction, and this after other means had been tried unsuccessfully.

(3) In two cases of furuncles without good effect.

(4) In one case of cellulitis without marked effect till the knife was used (in this case staphylococci were found, but no chains).

(5) In four cases where pain was the most marked feature of inflammation, with complete relief in three, and no effect in the fourth.

(6) In one case of erysipelas of the scalp, with immediate cure.

The latter is so striking, that it is reported in full.

B. C., bartender, æt. thirty-six; Irishman. Struck on the head by a bottle whilst intoxicated, December 20, 1887. Two slight wounds of the scalp, to which no dressing was applied. 22d. Chill, fever, nausea, great pain in the head, and swelling. Went to a clinic; wounds were opened, disinfected, and catgut drainage provided; symptoms progressive. He was seen by the writer on the second day of his fever, the fourth from the infliction of the wound. No sleep for two nights. Pulse 106; temperature 103°. Violent headache; whole scalp puffy, œdematous, and very tender; a few drops of thin pus squeezed from wounds. Cover-glass preparations of blood from puncture by tenotome showed Fehleisen's chains. A saline purge and iron were ordered internally. On the scalp was placed a thick layer of ammonium ichthyolate and vaseline, equal parts. The pain was relieved almost immediately; the patient slept comfortably; his temperature the following morning was 98°, and he was and remained well.

This is not different from the results obtained by Nussbaum.

With the exception of the case of erysipelas, the writer used a ten per cent. ointment of ammonium ichthyolate in lanolin, fearing lest, in the case of stronger applications, his effects might be ascribed to counter-irritation. It is possible that stronger preparations would have proven efficacious in the treatment of adenitis in which the weak ointment signally failed.

The extravagant praises bestowed by some authors on ichthyol savor more of proprietary advertisements than scientific contributions, and the variety of affections for which it is recommended might well make one doubtful as to its complete efficacy in any single instance.

An analysis of the cases in which it has proven serviceable will show, however, that they can be relegated to one of two classes:

1. Affections characterized by inflammatory enlargement.

2. Affections characterized by pain of peripheral origin, probably depending on inflammation or congestion.

For either of these conditions, theoretically, a powerful antiphlogistic would be indicated, so that the clinical indications for the use of the drug correspond to its alleged therapeutic effect.

When the surface is irritated, weak solutions (three to five per cent.) should be used; but when the skin is intact and the subcutaneous tissues are to be affected, pure or one-half strength ointments give the best results. In using strong preparations the skin should be washed with soap and warm water, and thoroughly dried before each application. Ichthyolates can be combined with any of the ointments, or can be dissolved in water.

The writer's success with the drug, even where it was not used in the most efficient manner, has convinced him that the praise bestowed on it by the Germans is well merited. Where suppuration has actually taken place the weak ointment is not of service, but in the allaying of inflammatory pain and the resolution of subcutaneous induration (excepting adenitis) the results are most satisfactory.

MEDICAL PROGRESS.

Laryngeal Perichondritis.—At a recent meeting of the "Wiener Medizinisches Doctorencollegium," Professor Schnitzler showed a very interesting case of laryngeal perichondritis of a doubtful character, which was completely cured by the use of iodide of potassium. The case was especially interesting from a diagnostic, as well as therapeutic, point. The patient, an apothecary, thirty years old, fell ill about a year ago with a cough, hoarseness, pains in the throat, and disturbances of swallowing. He was for a long time treated as an out-door patient at a certain clinic, but the diagnosis made there could not be found out. The patient stated that his larynx had first been treated with glycerine of iodine, and later on with the nitrate of silver. When admitted into the Polyclinic of Vienna considerable swelling of the whole laryngeal mucous membrane was found on examination; the epiglottis was particularly much reddened and thickened, and on both sides of it there were ulcerations, which extended over the "plicæ aryepiglotticæ." The seat and the appearance of the ulcerations immediately made the presence of a syphilitic affection probable, and this so much the more as the mucous membrane between the arytenoid cartilages was rather intact. The patient stated that he had, indeed, about twelve years ago, suffered from a catarrh of the urethra, with consecutive swellings of the inguinal glands, but that he had never suffered from syphilis, in the proper sense of the word. A sure diagnosis as to the presence of laryngeal syphilis was so much the more difficult as owing to an affection of the lungs, which could be proved by their examination, tuberculosis of the larynx was at any case possible, though tubercle-bacilli could not be detected in spite of repeated examinations.

Taking into account these conditions, Prof. Schnitzler first ordered the use of iodoform by insufflations into the larynx, and as these were not attended with any success, he ordered a systematic inunction cure for several weeks. All these procedures, however, failed, and the laryngeal

process, on the contrary, made further progress. In August and September the swelling of the whole laryngeal mucous membrane increased to such a degree that on account of the immobility of the arytenoid cartilages and the thickening of the vocal cords, the "rima glottidis" appeared to be quite closed, and the space for the passage of the air was reduced to a minimum. The disturbances of respiration had attained such a degree that tracheotomy was seriously taken into consideration. Though, owing to this course of the disease, the diagnosis of syphilis became more doubtful, Prof. Schnitzler, nevertheless, persisted in his first opinion, and now ordered the use of iodide of potassium in large doses, such as from 45 to 60 grains a day; The effect of this medication was quite surprising. The cough, hoarseness, and disturbances of swallowing soon decreased, the respiration became easier and freer, and the whole condition of the patient greatly ameliorated. The ulcerations completely cleansed and healed, though rather large scabs still remained. At present all was cicatrized, and there was no longer any trace of the ulceration. Only the middle part and the margins of the epiglottis, as well as the epiglottic plicæ, were transformed into a narrow scar; the arytenoid cartilages were almost of a normal appearance, and moved on phonation as well as on respiration quite freely. Prof. Schnitzler emphasized the special difficulties of the diagnosis in this case and wished emphatically to direct the attention to the success of the course of treatment.—*Medical Press and Circular*, Jan. 11, 1888.

Powders for the Treatment of Coryza.—VIGIER, in the *Journ. de Méd.* of January 8, 1888, gives the following formulæ:

℞.—Morph. hydrochlor. . . gr. ¾.
Pulv. gum. acac. . . . ℥i.
Bismuth. subnitrat. . . . ℥i½.
Pulv. althaeae . . . ℥i½.—M.
Sig.—By insufflation in the nares.

℞.—Amyl. pulv.
Acid. boric.
Tinct. benzoin. . . āā ℥ii½.

Mix, triturate, sift, and dry. If desired, 1½ grains of morphia hydrochlorate may be added.

What Antiseptics may be Used About the Eyes.—DR. WEEKS, of New York, in an article in the *Archives of Ophthalmology* for December, 1887, reports the results of his studies on this question, as follows:

The results of these experiments, confirming in greater part the results obtained by others, indicate as efficient antiseptic remedies, which can be used on the tissues without causing undue irritation, the following substances:

Bichloride of mercury, 1 : 1000 to 1 : 2000 on cut surfaces, on suppurating surfaces, and on the integument; 1 : 4000 to 1 : 8000 on mucous membranes.

Nitrate of silver, 1 : 100 to 1 : 500 on mucous membranes and on suppurating surfaces.

Chlorine water on mucous membranes and on suppurating surfaces.

Hydrogen dioxide as chlorine water.

Carbolic acid, 1 : 40 on cut surfaces and suppurating surfaces and on the integument.

Permanganate of potash, 1 : 100 to 1 : 200 on cut surfaces and on suppurating surfaces.

Alcohol, 66 per cent. on the integument and on suppurating surfaces, as in otorrhœa.

The *oil of cade* may be used to advantage in eczema, on account of its antiseptic and germicidal properties. *Calomel* is by far the most efficient antiseptic remedy in the form of powder that we have. *Iodoform*, which is highly valued by some oculists for use in infiltrated ulcers of the cornea, in gonorrhœal ophthalmia, and for the dressing of wounds, may be of service if it can be kept in contact with the parts for a number of hours. It is not irritating to mucous membranes or to cut surfaces, but is very slow in its antiseptic action.

Antiseptic dressings, so-called, are usually only aseptic. In order that bacteria may develop, it is necessary that they be on a surface containing 50 to 70 per cent. of water. We can thus readily see that bandage material must be free from all germs but those that are deposited on it from the air or from objects that it comes in contact with. It is antiseptic only when impregnated with an antiseptic substance and moistened. So long as a wound can be kept dry, healing will progress without the formation of pus, whether it is bandaged or not, simply because germs cannot develop if moisture is not present.

Mechanical, combined with *thermal*, sterilization in the use of hot water, is recommended as the best method of sterilizing instruments. As, however, the procuring of hot water is attended with some degree of trouble, and as a solution which can always be kept ready is more convenient, the combination of the mechanical with the chemical will probably be most used. The water used should be previously boiled and the antiseptic employed be either bichloride of mercury (1 to 2000), carbolic acid (1 to 20 or 1 to 40), or salicylic acid (1 to 1000). These act promptly and are efficient.

To cleanse the site of the operation soap and water should be used to remove oily substances and rough dirt, followed by a solution of bichloride 1 : 2000 to 1 : 5000 for germicidal effect. The surgeon's hands may be cleansed with a solution of 1 : 2000.

Hypnone, or acetaphenon, may be given in doses of ¾ of a minim to 3 minims, with caution, best administered in oil or ether, in capsules:

℞.—Hypnon. . . . . gtt. 4.
Ol. amygdal. dulc. . . . ♏ 8.
In 10 capsules.
Sig.—One or two capsules before retiring.

According to our present knowledge the value of hypnone is not clear; in some cases it has produced headache, and a very unpleasant taste.—*Deutsche med. Wochenschrift*, January 5, 1888.

The Treatment of Carotid Hemorrhage.—TREVES, of London, describes the following procedure, in the *Lancet* of January 21, 1888, which he employed successfully in four cases, one of which he describes as follows:

In the neck, pressure upon the carotid artery cannot be applied with success, or maintained for a serviceable length of time. The vessel can, however, be very readily occluded for a while and the carotid circulation arrested without the artery being permanently closed. This is effected by exposing the artery in the usual way

and passing around it a thick piece of soft catgut. This is tied in a very loose loop. By pulling upon the loop the circulation through the vessel is at once arrested, but is, however, at once restored when the tension upon the loop is relaxed. Without discussing the possible value of this procedure, the following case may be briefly detailed.

A man, aged twenty-five, was brought to the London Hospital in 1880, bleeding profusely from a deep wound in the neck, about the level of the great cornu of the hyoid bone. While attempting to open a soda-water bottle the bottle burst, and a fragment of glass was driven into the neck. The cut made was less than one inch in length. The glass had been removed. The bleeding had been very profuse, and was arterial. The patient was blanched and almost insensible. The radial pulse could scarcely be felt. The bleeding was for the time checked by pressing a tampon against the wound. It was obviously useless to attempt to find the bleeding point while blood was welling up from so deep a wound. I, therefore, at once exposed the common carotid artery through a lower incision and placed a catgut loop around it. Traction upon this arrested all bleeding. The patient was placed in bed and surrounded by warm bottles. His condition was so grave that I did not feel disposed to search for the bleeding point. Traction upon the loop was maintained for half an hour. On relaxing the catgut no bleeding took place, and it never again recurred. The loop was left *in situ* for four days, when it was removed. The man, who was in vigorous health at the time of the accident, made a rapid and uninterrupted recovery. I supposed the bleeding to have come from the superior thyroid artery.

Alcohol for Children.—Jacobi, in the *Archives of Pediatrics* for January, 1888, writes that alcohol has conquered its place among the medicinal foods in the diseases of infancy and childhood. Very little, if any, is required in catarrhal, or the first stages of inflammatory, diseases. It is contraindicated in meningitis, acute cardiac ailments, gastro-enteritis, peritonitis, and acute dysentery. It finds its application in depressed strength and vitality; thus, in the rules for the management of infants during the hottest days of summer, which the Health Department of the City of New York has published annually these fifteen years, he recommended the administration of a teaspoonful of whiskey daily. It is also required in chronic diseases and slow convalescence.

Its action is stimulant, nutritive, antipyretic, and antiseptic. It is decomposed into carbonic acid and water, and thus saves the waste of material parts of the body. When given in sufficient quantities, it reduces the temperature; the amount required for that purpose is, according to Binz, forty grammes, corresponding with about three ounces of brandy or whiskey. Its most beneficial action is exhibited in sepsis of all forms, mainly also in the septic variety of diphtheria. It is almost impossible to give too much. The doses must be watched so as to be sufficiently large. Whoever is not afraid of giving six ounces of whiskey daily to a child when one or two fail, or ten or twelve when six fail, will soon convince himself of its power for good. It must never be given in concentration; the gastric mucous membrane tolerates no pure brandy or whiskey for any length of time; they must be diluted with either water or milk properly prepared. Wines, brandies, and whiskeys are not equivalent. The latter is obtained pure with greater facility, and at less expense, and besides has, for many, a less disagreeable taste than either of the others, which are often adulterated. The ether contained in wines militates against any antifebrile effect which may be expected from it; the fusel oil with which brandies are too frequently adulterated, acts rather as a paralyzing than as a stimulating agent.

Benzol in Whooping-cough.—Dr. J. Lowe highly recommends benzol as a remedy for whooping-cough. To deprive the benzol somewhat of its hot, burning taste, and to prevent it from causing nausea, he advises it to be administered in a viscid mixture, and in small doses, usually in quantity of three or four minims. Yet even smaller doses are effective, and for a child four or five years of age two minims every two hours will be sufficient. The following mixture is recommended by him:

R.—Benzol. puriss.	♏32.
Glycerini	fl. ℥ i½.
Ol. menthæ pip.	♏10.
Syr. mori	fl. ℥ ½.—M.

A teaspoonful every two hours.

[In place of syrup of mulberries, some other pleasant syrupy vehicle, such as syrup of raspberries, may be used.]—*British Medical Journal.*

Oleate of Atropine in Suppositories is recommended by J. F. Brown, of Dover, England, as a substitute for extract of belladonna. Ten grains of atropine dissolved in a half-ounce of oleic acid and diluted with oil to a fluid-ounce and twenty minims, will form a solution of which each minim will represent one grain of the extract.—*Pharmaceutical Journal.*

The Treatment of Ophthalmia Neonatorum.—Mules, of the Manchester Eye Hospital, in a Prize Essay published in the *Medical Chronicle* for January, 1888, describes the following treatment:

The mother or nurse should first wash the eyes in warm water to remove the secretion and free the lids. The surgeon should be seated in a convenient chair, with a folded towel across his knees, and with medical appliances within reach of his hand. These appliances are: (1) A plentiful supply of pieces of clean rag; (2) solutions of argenti. nit., 5 grs. to oz., and 10 grs. to 1 oz.; (3) vessel of clean water; (4) two camel's-hair pencils to apply the solutions and wash the excess of fluid away; (5) a bottle of eserine, 5 grs. to 1 oz., and dropper; (6) lid elevators. He then receives the head between his knees, yet supported by the towel. The nurse tucking the child's legs under her left arm, supports the body on her raised knee, holds the child's hands with one hand, and has the other at liberty to assist the surgeon. The surgeon first proceeds to examine the condition of the cornea by gently raising the upper lid with his finger—if there is any difficulty in this manœuvre he uses an elevator. A bent hair-pin often answers admirably. He next everts the lids, wipes them dry, paints them with the silver solution of the required strength, taking special care to get the *back folds of the conjunctiva*, and washing off the excess of solution with clean water, carefully replaces the lids by drawing them

downward and away from the globe. This process is repeated by the surgeon every morning until the disease is arrested, his object being to produce a slight eschar, which either destroys the microörganisms or prevents their multiplication. The effect lasts about twelve hours. In severe cases the solutions can be reapplied at night. However careful the surgeon may be his efforts are of little avail unless he is ably seconded by the nurse. Her duties are—to prevent the recollection of pus, by constantly opening the lids and wiping the matter away with clean rags; to wash the conjunctivæ with a weak alum or boracic acid solution, 3 grs. to 1 oz.; to anoint the lid margin with cerate to prevent adherence, and to combat the feverish restlessness by fresh air and careful attention to diet.

Menthol in Laryngeal Phthisis.—BEEHAG, of the Royal Infirmary, Edinburgh, reports his use of menthol by insufflation and by applications with a brush or swab as follows:

With the object of securing more prolonged contact with the diseased tissues in phthisis laryngea when there is much secretion present, I have introduced a powder to be insufflated alternately with the injections. The formula is as follows:

R.—Menthol . . . . . ʒss.
Ammon. chlor. . . . . ʒjss.
P. acid. boric. . . . . ʒj.—M.

The same powder, when pulverized very finely, will be found to be very useful in chronic laryngeal catarrh, and the after sensations are not so unpleasant as those which follow upon the insufflation of ordinary powders.

In cases of chronic pharyngitis with hyperæsthesia or paræsthesia I use the well-known Mandl's formula with menthol superadded, the prescription being as follows:

R.—Iodi. . . . . gr. vj.
Potas. iod. . . . . gr. xx.
Aquæ . . . . . ʒiij.
Menthol . . . . . ʒjss.
Glycerini . . . . . ʒvj.—M.

The menthol, which should be powdered very finely, is for the most part here suspended in a fine state of division, and the mixture requires to be shaken occasionally. —*Edinburgh Med. Journal*, January, 1888.

Litholeine.—NOEL, in the *Gazette Médicale de Paris* of January 31, 1888, reports the advantages of this substance, which is a product from the distillation of petroleum. It is an oily liquid, yellow in color, free from fats and resins. Its reaction is neutral, it contains traces of calcareous materials, and is insipid and odorless. Clinically it has proved useful as a substitute for solid and liquid vaseline; it possesses antiseptic and antiparasitic properties, and has been used with the best results in eczema and parasitic skin diseases.

The Treatment of Diarrhœa with Greenish Stools, in Infants.—In THE MEDICAL NEWS of July 9, 1887, page 47, we described a method of treating the diarrhœa of nurslings, characterized by greenish stools, practised by HAYEM, of Paris. He has continued his clinical studies on this subject, and in the *Gazette Hebdomadaire* of January 20, 1888, he reports that he has extended his treatment to adults and finds new evidence of its value. The treatment consisted in the administration of lactic acid, in convenient menstrua, as a germicide for the bacillus present in the intestines of these patients.

SEVESTRE has also arrived at similar conclusions by clinical research, and reports that he has obtained good results by using the remedy in larger doses than Hayem employed, he had given a teaspoonful of lactic acid, 1 to 50, with simple syrup every ten minutes in grave cases. In "bilious diarrhœas" he had obtained good results from large doses of sodium bicarbonate.

Saccharin in Various Combinations.—CHUCHE, in the *Revue Gen. de Clin. et de Thér.*, January 5, 1888, gives the following formulæ for various combinations of saccharin:

R.—Quiniæ sulphat. . . . . gr. 8.
Acid. sulphur. . . . . q. s.
Essen. menth. piper. . . . gtt. 5.
Solut. saccharin. . . . . gtt. 10.
Aquæ destillat. . . . . gtt. 100.

R.—Rhei pulv. . . . . ʒ 2½.
Saccharin. . . . . ʒ 2½.
Syrup. fœniculi . . . . gtt. 4.

R.—Chloral. hydrat. . . . . ♏ 75.
Solut. sacchar. . . . . ♏ 75.
Aquæ destill. . . . . ʒ 25.

R.—Sodii bicarb.
Acid. tartaric. . . . . āā ʒ 2¼.
Saccharin. . . . . gr. 30.

[The superiority of saccharin to sugar, as a sweetening agent, makes it most convenient in combination; the solution mentioned is undoubtedly a saturated one.

These formulæ are intended merely to indicate some of the combinations most generally used, without specifying dosage.]

Ichthyol, Internally.—VON NUSSBAUM, of Munich, has observed that ichthyol is of value, administered internally, in conditions of gout, rheumatism, and capillary engorgement from varying causes.

He prescribed it in pills, each containing one and a half grains, and gives it in increasing doses, until the patient takes from seven and a half to ten grains morning and evening. When good results are obtained the remedy may be discontinued, but on an exacerbation of rheumatic trouble the full dose last given should be employed at once.

With the exception of a few cases, who could not take the remedy in small doses, no unpleasant effects were seen.

Von Nussbaum, by way of experiment, took seventy-five grains of ichthyol in twenty-four hours without inconvenience.

In a few patients he found that it excited a tendency to eczema.—*Therapeutische Monatshefte*, January, 1888.

Rectal Feeding.—From a study of the subject of rectal alimentation, DR. WEAVER (*Transactions of the Luzerne County Medical Society*) has formulated the following conclusions:

1. By the use of enemata life can be sustained indefinitely with little, if any, loss of weight to the body.

2. In a large proportion of cases in which rectal aliment is used, true digestion of albuminous, saccharine, and fatty food takes place, by virtue of inhaustion, or a reversal of the normal peristalsis of the alimentary tract.

3. While this is the case, there are doubtless instances in which retrostalsis does not occur, and for that reason the food used should first be artificially digested before being injected into the rectum.

4. While milk, eggs, and brandy are the best aliment for rectal nutrition, no one article should be used for too long a time, but frequent changes should be made, observing the greatest care to prevent irritation of the rectum, or intolerance of that organ for the nutriment required.

5. The enemata should, if possible, be administered by the physician himself. Where difficulty in retaining the aliment is encountered, the colonic method is preferable, the food being propelled through a rectal bougie. The food should be of the temperature of the body.

6. The rectum having once become intolerant of enemata, *absolute rest* must be given to that viscus for a few days, and reliance be placed on nutritious inunctions of the surface of the body.

7. For rectal alimentation there exists a wider range of usefulness than has heretofore been assigned to it. It is not only appropriate in the severer forms of chronic disease of the stomach and œsophagus, but is indicated and should be utilized in the management of all *acute* diseases when, from any cause, the stomach becomes intractable and rebellious.

8. In diseases of the stomach, even where a portion of the food ingested is retained by that organ, only to undergo fermentation, inducing thereby pain and distress, it is more logical to resort to rectal alimentation, not as an *adjunct* to, but a *substitute* for, stomachal ingestion.

9. Certain organic lesions as well as functional disturbances of the stomach are curable by means of rest to that organ, and by no other means. In rectal alimentation we have a safe and sure means of nutrition, pending the necessary period of rest to that organ. — *Dietetic Gazette*, January, 1888.

The Influence of Tissue Changes in Producing Uterine Flexions.—GRAILY HEWITT, in the *Medical Press and Circular* of January 11, 1888, summarizes his views on this point as follows:

1. Undue softness of the uterus associated with defective nutrition either in nulliparous or in parous cases usually precedes flexion. 2. Flexion then occurs. 3. The flexed and soft uterus readily becomes congested. 4. The congested flexed uterus generally becomes hypertrophied. 5. The flexion now permanent is an obstacle to removal of congestion. 6. Compression of uterine tissue caused by flexion is an important element in chronic metritis. 7. Endometritis is, as a rule, a secondary effect of chronic general congestion of the uterus.

For Eczema.—BROCQ, in the *Revue Gén. de Clin. et de Thér.*, January 5, 1888, prescribes the sodium salts as follows:

℞.—Sodii salicylat.
Sodii benzoat. . . . āā gr. 30 to 75.
Sodii bicarbon. . . . . ʒ 2½.
Aquæ destill. . . . . ℥ 12½.

Any compatible tincture or syrup may replace a part of the water.

Dose two to four teaspoonfuls, or a tablespoonful daily.

Arsenic and sodium may be given in

℞.—Sodii arsen. . . . . gr. ⅓.
Sodii benzoat. . . . . gr. 30 to 75.
Sodii bicarb. . . . . ʒ 2½.
Aquæ . . . . . ℥ 12½.

This prescription may also be varied, in its vehicle, as needed.

Dose two to four teaspoonfuls daily.

Meat in Phthisis.—COHEN, in the *Dietetic Gazette* for January, 1888, writes as follows:

The opinion most widely prevailing at the present time assigns the first rank as an aliment in phthisis to flesh, and more especially to beef. The results obtained by certain individuals, who devote themselves to the treatment of disease by an exclusive diet of beef prepared in a certain and most excellent manner, conjoined with lavatory potations of hot water to prepare the digestive canal for the reception and disposition of the aliment, cannot be ignored, whatever we may think of the theories and methods of the practitioners in question. Without confining themselves to beef, scientific physicians are justified in giving it the first rank.

It should be taken at least twice daily, three times if possible. It may be eaten raw, as it comes from the butcher, or it may be chopped finely, seasoned to taste, and made into little cakes, which are eaten raw or slightly browned on the gridiron. It may be taken in the form of rare beefsteak broiled in its own fat, or as very rare roast beef. Other methods of cooking are to be prohibited. The meat is to be as juicy as possible and fibrous portions are to be removed.

Very often one can be satisfied with the use of butcher's meat, raw or cooked as above. Sometimes, however, whether from partial failure of digestive powers or other conditions necessitating reduction in bulk without loss of nutritive material, or suggesting conservation of the energy that would be expended in digestion, it becomes necessary to resort to special methods of preparation. The meat powders prepared by various pharmacists, more especially for forced feeding, here render valuable aid. By cutting boiled beef into fine pieces, drying by means of a water bath, and grinding in a coffee mill with the teeth set closely, an excellent meat powder may be made in the kitchen. (Dujardin-Beaumetz.)

The preparation from which the writer has seen the greatest benefit, and which he is in the habit of most frequently prescribing, is Beef Peptonoids. Whether from improvement in the process of manufacture, rendering it more palatable, or from decrease in the fastidiousness of patients, there has not recently been the same difficulty in getting patients to persevere in the use of it that was experienced in former years.

The methods of administration may be varied almost indefinitely. It may be added to soups and broths, to milk punch, egg-nogg, etc., taken in warm or cold water, or made into a paste with milk or water and spread upon bread. Beginning with a teaspoonful three or four times a day, the amount is to be increased as soon as the preferable method of administration is determined upon, to a tablespoonful or more. It is preferably given among the supplementary articles of diet, between meals.

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OF MEDICAL SCIENCE.

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ISCHURIA FROM PROSTATIC HYPERTROPHY.

DURING the past year, several interesting contributions have been made to the subject of retention of urine from enlargement of the prostate gland, which throw some light upon the benefit to be derived from excision and incision of the obstructing body. In a paper read at the Clinical Society of London on November 11, and recorded in the *British Medical Journal* of November 19, 1887, MCGILL narrated three cases in which he had resorted to epicystotomy, and removed with scissors and forceps the hypertrophied median portion, with the result of enabling the patients to dispense with the use of the catheter. In these cases, the retention had existed, respectively, for five weeks, seven months, and three years, and was complicated by calculi in one, and by fetid urine in two.

Suprapubic prostatectomy opens up a new field for the operator in a class of cases that have always proved to be a source of great anxiety to the surgeon, and suffering to the patient. One of its advantages is that it does away with the necessity of permanently wearing a tube to drain the bladder; but how far it will prove applicable to all cases of retention from a valve-like projection of the median portion of the prostate will have to be determined by extended experience.

It can scarcely be admitted that, except in comparatively recent instances, ischuria is due solely to the enlarged middle lobe. The longer the retention exists, the more and more surely do the muscles of the bladder become incapacitated for the performance of their function, until, finally, in old-standing cases, the viscus is paralyzed, and the neck of the bladder embedded in the enlarged prostate is rigid. In cases of this kind, the extirpation of the obstructing portion will do no good, as is exemplified by the examples of epicystotomy with removal of the median lobe with the galvanic cautery, related by BENNO SCHMIDT, of Leipzig, at the last Meeting of Naturalists and Physicians at Wiesbaden, and recorded in the *Wiener med. Presse*, No. 51.

In the third edition of his *Lectures on the Surgical Diseases of the Urinary Organs*, lately issued, HARRISON states that he has done prostatotomy over twenty times, but he unfortunately does not give the detailed account of his cases which the profession has a right to expect. His results are summed up as follows: "Not a single instance has yet happened where I have regretted having done the operation, or directly or indirectly connected the death of the patient with the proceeding. In two instances only, so far as I know, did the patients die; one three weeks after the operation, and the other four. Both lived longer and more comfortably than they would otherwise have done, and had nothing to regret in what was undertaken for them. Both patients showed after death a condition of the urinary organs which was beyond repair." In the remaining cases, we are led to infer that the results were satisfactory, and in the three cases in which the histories are given, the patients were well, and had discarded the catheter for respectively six, twelve, and eighteen months.

BOTTINI, at the meeting of the Italian Medical Association at Pavia, of which a note may be found in the *Annales des Mal. Gén.-Urin.* for December, has also recorded favorable results from his operation of internal prostatotomy with the galvanic cautery, a procedure which he has resorted to for upward of ten years.

Incision and excision of the obstructing portion of the prostate have, more especially in view of their safety, been too much neglected by surgeons. We are firmly convinced that they should be subjected to unprejudiced and extended trial, since the meagre accounts we have presented of their results show that they are capable of affording permanent relief, despite the dogmatic assertion of a recent writer in Heath's *Dictionary of Practical Surgery*, that they are "worse than useless."

THE CAUSATION OF TYPHOID FEVER.

Though the bacillus of Eberth, Koch, and Gaffky is recognized by bacteriologists and practical pathologists as the cause of typhoid fever, this relation seems not correctly estimated by hygienists and clinicians. This is especially true in America, for which reason the observations of Vaughan and Novy, published in The Medical News of January 28th, deserve more careful attention than even their great intrinsic value would entitle them.

The researches of the last seven years prove the presence in all cases of typhoid fever, in the intestinal lesions, mesenteric glands, spleen, and liver, of a bacterium which possesses distinct peculiarities of form, size, mode of growth, and reaction to coloring matters, as well as a distinct chemical product or ptomaine. These facts, with the absence of the bacillus in other diseases, and its presence in water and milk suspected of having caused typhoid fever, would alone almost suffice to establish its causal relation. The crucial experiment of producing the same disease in animals by pure cultures of the bacillus failed. This failure, however, was due to the fact that none of the domesticated animals acquire typhoid fever when exposed to the same causes as man in various epidemics. In this respect typhoid fever corresponds to cholera, and just as Koch found that by changing the habit, so to speak, of the animal intestine, it became a suitable nidus for the development of the cholera germ, so Seitz was able to produce a peculiar disease by proceeding in the same way and injecting cultures of typhoid bacilli. These experiments were repeated and modified in various ways, with the result of proving that not only cultures of the bacillus, but even such as were sterilized or freed from germs, produce in animals a distinct disease.

It is, therefore, evident, that the bacillus acts not only locally, as in the production of intestinal lesions, but also that it produces chemical substances belonging to the class of poisonous ptomaines. This goes far in explaining some peculiarities in the clinical course of typhoid fever. The ptomaine isolated by Brieger from cultures of the bacillus, named by him typhotoxine, does not seem able to produce all the symptoms, notably fever, one would expect from such a principle. The product obtained by Vaughan and Novy seems to fulfil the conditions to a greater degree, though as their investigations are as yet not complete it is too early to base any theories on it. It is important to bear in mind that in the lower animals typhoid material produces an intoxication, rather than an infection, but nevertheless an intoxication which is distinctive and caused by a distinct substance. Still, it is by no means indifferent whether cultures or their products be used in the experiments. In the latter case much larger doses are necessary to produce a given effect, a thing easily explained by the fact that the bacilli can live for hours or days in the animal body, and during that time, of course, continue to produce ptomaines.

The already large amount of testimony showing the occurrence of the direct cause of typhoid fever in drinking water is increased by this work of Vaughan and Novy. As this relation was well known even in pre-bacterial days, it is not likely the present lesson will be heeded by sanitarians any more than the former ones. Fortunately, however, there is promise of another means of prevention, namely, by inoculation. Beumer and Peiper, in an extensive series of experiments (*Zeitschrift für Hygiene*, Bd. 2, Heft iii.), found that by using cultures which had been sterilized by heat they could produce in guinea-pigs a condition which presented the same symptoms and anatomical changes, and caused death in the same time as did the live bacilli, uniformity of dose being understood. By a gradual treatment of the animals with such cultures, beginning with the minimal dose and increasing it slowly, it was found that the guinea-pigs acquired perfect immunity toward doses ordinarily lethal. In their first series of such experiments, out of eleven animals only one died, and there is no reason to doubt that with more experience perfect results can be obtained. This certainly seems more promising than any method yet proposed for preventive inoculation.

The next thing to do, as Beumer and Peiper say in conclusion, is to ascertain, in man, the respective roles of bacillus and ptomaine. This having been learned, and the technique of inoculation having been perfected, there would be no reason to hesitate in making cautious experiments on human beings, experiments which, when we regard the ravages of typhoid fever, would be quite as justifiable as those being made on such an enormous scale for a disease so comparatively rare as hydrophobia.

SUCCESSFUL SPINAL SURGERY.

Mr. Victor Horsley has recently applied the principles of treatment which have guided him in cerebral surgery to the treatment of spinal affec-

tions. At a late meeting of the London Medical and Chirurgical Society a private patient of Dr. Gowers and Mr. Victor Horsley very generously allowed the Fellows and visitors of that Society the opportunity of seeing all that had been done for the improvement of his condition. He had spent about three years in severe pain, which was most intense just below and inside the angle of the left scapula, and was accompanied by absolute loss of motion and sensation of the body and limbs below that level. The upper border of the anæsthesia was distinctly in the region of the fifth intercostal nerve on the left side, on the right it was less accurately defined, but did not extend higher. All the symptoms agreed with those of tumors of the spinal cord, and the intense pain afforded ample justification for making an attempt to excise the tumor. Mr. Victor Horsley accordingly removed the spines and parts of the laminæ of the fifth and fourth dorsal vertebræ; but not until the third vertebra had been similarly treated did the tumor come into sight. It was a small oval myxoma compressing and making a deep impression on the left side of the spinal cord below the third vertebra. It was easily shelled out, and under careful antiseptic treatment the temperature did not rise more than 1° F. The wound healed rapidly, except at the uppermost point, where a drain had been left in by which a little cerebro-spinal fluid flowed away very slowly. For three or four weeks the former acute pain did not lessen, and even at times seemed more agonizing; but after that it gradually and intermittently decreased, and now, after seven months, is entirely gone; the sensation and motion of the body and legs are almost completely restored.

We join most heartily in the congratulations which the *British Medical Journal* extends to the operator in its account of the case, and trust that this first successful operation for spinal tumors may lead American surgeons to emulate their English brethren in attaining success in the management of these otherwise intractable cases.

SMALLPOX IN LODGING-HOUSES.

THE modern lodging-houses that are springing up in all our large cities deserve to be an object of special watchfulness on the part of the local health authorities, on account of the relations they sustain to winter outbreaks of smallpox. Some of our cities would be relatively free from that pest if the nomadic population which patronizes these cheap resorts could be legally held under sanitary surveillance and made safe by compulsory vaccination. A daily inspection would be advantageous to the community, in regard to many of these "hives" of impoverished and shiftless lodgers who, perhaps on the morrow, may carry infection to a jail, an almshouse, or a crowded steamer.

In Brooklyn, New York, the grand jury has just made a declaration censuring the authorities for failing to cause a weekly inspection of those "low-priced lodging places where temporary refugees, whose financial circumstances and migratory character forbid careful attention to cleanliness, congregate in large numbers." In the city above named, smallpox has been unusually prevalent this winter, and a very considerable proportion of the infecting cases have been traced to these cheap houses whose nightly population has been estimated to exceed five thousand persons, mostly tramps or persons but little superior to that class. Some of these places are so unsanitarily conducted that it has been said of them that all the vile odors of the town meet there once a week for consultation.

MEDICAL DIVISION OF THE PENSION BUREAU.

WE give on another page copies of two bills recently introduced in the House of Representatives affecting the medical officers of the Pension Bureau, and medical examining boards. The first bill increases the Medical Staff of the Pension Office by one surgeon and six medical examiners, and increases the compensation allowed to each class.

The salaries specified in the bill are certainly not too high, taking into consideration the amount of knowledge required and the importance to the Government of correct decisions by these officers.

The rates of compensation fixed by the second bill also seem low, and the only change which it makes is to give a little additional compensation to the Secretaries of Boards of Examining Surgeons, in consideration of the extra clerical work which they have to perform, a change which appears reasonable and just. We therefore hope that both these bills will become law, and if the Pension Examining Surgeons of the county interest themselves in the matter there is little doubt that this will be the case.

THE TREATMENT OF PULMONARY PHTHISIS BY CREASOTE.

IN THE MEDICAL NEWS of January 21, 1888, we called attention to the results reached by Sommer-

brodt and others by this method of treatment. Since that time we have had our attention called, by a kindly correspondent, to the fact that the formula, which was copied directly from the German, is not very clear. We have, therefore, hunted up the original formula used by Gimbert and Bouchard, which was also used by Fräntzel, and is given in his paper in the *Deutsche medicin. Wochenschrift* of April 7, 1887, as follows:

R.—Creasoti	. . . . .	13.5.
Tincturæ gentian.	. . .	30.0.
Spirit. vini rectific.	. . .	250.0.
Vini Xeric.	. . q. s. ad.	1000.0. M.

S.—A tablespoonful twice or thrice daily in a wineglassful of water.

As this formula is identical with that which Sommerbrodt states that he used, we hope that this note will not only serve to make clear the rather doubtful recipe first given, but enable our readers to put the method to practical tests and report their results.

Dr. W. T. Councilman, Associate Professor in Pathology in the Johns Hopkins University, has been elected to the Chair of Anatomy in this institution. The chairs of Chemistry, Physiology, Pathology, and Anatomy are now filled in this University, preparatory to the opening of the Medical Department.

Dr. Heneage Gibbes, late of Westminster Hospital, London, has arrived in this country, and has entered upon his duties as Professor of Physiology in the University of Michigan, Medical School, at Ann Arbor.

About fifty of the English laryngologists have signified their intention of joining a proposed British Laryngological Society; Sir Morell Mackenzie's name heads the list.

The first number of *The Brooklyn Medical Journal*, edited by the Editorial Committee of the Kings County Medical Society, has been received. The *Journal* is attractive in appearance, and the excellence of its contents and the ability of its Editorial Committee bespeak for it a place among our valued exchanges.

The *Journal of Reconstructives* became, on January 1, 1888, the *Dietetic Gazette*, and passed under the editorial control of Dr. George B. Fowler, and we understand that it is proposed to issue it as a monthly. The scope of the journal is indicated by its name, and the January number presents a very attractive table of contents.

The Methodist Episcopal Hospital of Brooklyn, New York, has just been opened, and the following medical staff has been appointed:

Consulting Physicians.—Alfred E. M. Purdy, M.D., Alex. Ross Matheson, M.D.

Consulting Surgeons.—L. Bolton Bangs, M.D., Nelson L. North, M.D.

Attending Physicians.—William H. B. Pratt, M.D., Benjamin F. Westbrook, M.D.

Assistants.—Warren C. Sneden, M.D., Glentworth R. Butler, M.D.

Attending Surgeons.—Lewis S. Pilcher, M.D., George R. Fowler, M.D.

Assistants.—John Bion Bogart, M.D., William M. Thallon, M. D.

Pathologist.—Eugene Hodenpyl, M.D.

Whooping-cough was very fatal in London during the last quarter of 1887, causing 828 deaths. This was one-third of the mortality by the chief zymotic diseases, or 2580 deaths, and about one-fortieth of the total mortality from all causes in that quarter, or 20,732 deaths. Scarlet fever, with 658 deaths, followed next in severity. In Salford, whooping-cough was unusually destructive of life. The same was true of Aberdeen and Glasgow, Scotland, also in Belfast, Ireland.

The *British Medical Journal* of January 28th, announces its weekly circulation at 14,500 copies; the figure having formerly been 14,000. It estimates that this total exceeds the combined circulation of all the other medical periodicals printed in Great Britain. This increase of 500 subscribers was subsequent upon a special issue of the *Journal* of December 10th, to the profession at large.

REVIEWS.

A Text-book of Therapeutics and Materia Medica, Intended for the Use of Students and Practitioners. By Robert T. Edes, A.B., M.D., formerly Professor of Materia Medica and Jackson Professor of Clinical Medicine in Harvard University. 8vo, pp. xi. 632. Philadelphia: Lea Brothers & Co., 1887.

The announcement some months since that this book was about to be published, was received with pleasure by students of therapeutics. The appearance of the volume will, however, disappoint their expectations, for the scope of the work does not fulfil their anticipations. The intention of making a text on materia medica is denied in

the preface, notwithstanding the title, and the directions for the use of drugs are too brief to prove satisfactory to the practitioner or student.

In the effort to condense, Dr. Edes has left out much matter which we believe it to be impossible to throw aside without great loss. As a good example of this we may mention the article on digitalis, the consideration of its physiological action and indications being not over two pages in length; aconite covers scarcely as much; while antipyrin and antifebrin cover, each of them, but a half page, or perhaps a few lines more. In addition to these disadvantages some of the statements made are, to say the least, calculated to mislead, if they are not absolutely incorrect, and vary so with commonly accepted belief that the author should have enlarged his text to defend himself. Thus, he states that the cumulative action of digitalis is that peculiar change which comes on when a person under the influence of the drug suddenly sits upright having previously been lying down, and that the "cumulative" action implies in no way whatever that any actual accumulation of the drug has occurred in the system. This statement, we believe, is not only contrary to the teachings of the best therapeutists of the day, but also to our knowledge, derived from both practical and experimental researches on the drug. Cumulative action is, we believe, generally recognized as being the result of the constant administration of digitalis, whereby, owing to its slow elimination, it accumulates in the body. This is particularly the case where kidney lesions are present, and where effusions of serum have taken place into visceral cavities. Under these circumstances sudden withdrawal of the effusion by tapping will often cause cumulative action by the absorption by the bloodvessels of the drugged liquids in the connective tissues. Cumulative action may, of course, come on from other causes, but it is often produced very suddenly by this means.

As we have already said, as a text-book it is far too meagre, and as a "Quiz Compound" it does not fulfil the requirements of such a doubtfully valuable sphere of medical literature.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, February 2, 1888.

THE PRESIDENT, A. JACOBI, M.D., IN THE CHAIR.

DR. ROBERT W. TAYLOR read a paper on

XERODERMA PIGMENTOSUM AND ITS RELATION TO MALIGNANT NEW GROWTHS OF THE SKIN.

It was in 1870, he said that Hebra and Kaposi published in their book the first account of a skin disease peculiar to childhood, multiform in its manifestations and indelible in its disfigurements. It was especially destructive to the eyes, nose, and mouth, and by its subsequent new growths was liable to lead to death. Their account of the disease was based on four cases observed by them. In 1877 Dr. Taylor read before the American Dermatological Association, at its annual meeting, a paper giving the histories of seven cases, all of which had been under observation for a number of years. At the same meeting Dr. C. Heitzmann also reported a case. In 1878 Dr. Taylor read a second paper on this subject before the Association, and the paper which he now presented to the Academy of Medicine, he said, embodied the results of his observations and studies for fifteen years.

In 1878 Duhring also reported a case, and in 1882 Kaposi published a valuable paper on the disease. In 1883 Neisser reported two cases, and embodied with their description an account of six cases observed by Rüder. In the same year Vidal's paper was published. In 1884 Pick published a paper, and in the same year Crocker also published one containing the histories of three cases, the only ones hitherto observed in England. In 1885 Kaposi reported his ninth case, and the same year Dr. J. C. White, of Boston, also reported one. Altogether forty cases had been observed up to the present time, but one of these had to be rejected as not being in reality an instance of the disease in question. There was more or less doubt about the diagnosis of some of the others, on account of the lack of a report of the earlier stages, but, notwithstanding the absence of certain data that were highly desirable, they were accepted.

Dr. Taylor then proceeded to give in detail the history of some of his cases. Three of them occurred in one family, and two of them in another family, closely related to the latter. All his cases were in females with one exception. In one of them, in which there were numerous vascular tubercular elevations, there was a supraorbital tumor of considerable size, which was operated upon by Drs. Gruening and Gerster, and later it was found necessary to enucleate the eyeball. The one boy who was the subject of the disease when seven years old was attacked with mumps, and, resulting from this there was an abscess, which had to be opened. The wound thus made never healed. Extensive ulceration followed, and this finally involved the coats of an artery, in consequence of which uncontrollable hemorrhage occurred, from which the patient died. Another of the children died of marasmus, and still another was accidentally drowned.

In these seven cases, Dr. Taylor said, all of the clinical features of the disease were portrayed. The affection consisted essentially of telangiectases, pigmentations, and atrophic changes; to which were superadded certain polymorphous new growths which were primarily benign, but were liable to degenerate into malignant tumors. In six of the cases the disease commenced when the children were about seven months old, and in the seventh at the age of fourteen months. The weight of evidence places this affection as one of very early childhood, and he laid great stress upon the prodromal erythema, the usual seat of which is on the face under the eyes, and which is liable to be mistaken for sunburn. It occurs in infants in good health and without apparent cause. This prodromal hyperæmia lasts from one to three months, and as it gradually disappears the pigmentations begin to make their appearance. They affect the face and the exposed parts of the neck and extremities; often extending as low as the third rib on the chest, and up to the elbows on the arms. They vary in size from a pin-head to a lentil, and are not much elevated above the surface. Scattered among them are the red or telangiectasic spots, in which congeries of capillary bloodvessels can be distinguished with a strong glass. Upon the hands there is much less of the prodromal

erythema than upon the face. In the meanwhile there are no marked local symptoms, heat, burning, and itching being absent; and the general health remains good. The lesions are always characterized by alternating exacerbations and periods of inactivity; so that the course of the disease is more or less erratic.

The period of the pigment spots and the telangiectases belongs principally to early childhood, and these two orders of lesions are peculiar to the stage of hypertrophy. The atrophic changes usually make their appearance at the end of the first year. The atrophy is not, as a rule, symmetrical, and varies greatly in extent and intensity in different subjects. It is not commonly as well marked on the extremities as on the face. This atrophy of the skin develops in accordance with the atrophy of the bloodvessels of telangiectasis. It is especially apt to affect the eyes, nose, and mouth, causing ectropion and deformity of the nasal and oral cavities. Very often hypertrophic changes are taking place at the same time as the atrophic. The career of the primary disease can then be briefly divided as follows: First there is, after a general hyperæmic stage, dilatation of capillaries; then these increase in size by new growth of their elements. This gives rise to the red spots, which contribute to the first stage of the disease. After remaining a variable period, these minute capillary new growths undergo atrophy, leaving on their site brown spots. This constitutes the second stage, while the third is occupied in the continual new growth of vessels upon the site of those already obliterated in the atrophy of the skin itself.

The pigmented spots, or pustules, are not necessarily permanent, but in certain localities, particularly where atrophy existed, they come and go, fading and being replaced by other similar spots. They vary in color from a light brown to black, and invariably appear in the exact positions previously occupied by the red ones, constituting a new function of the superficial capillaries. If these changes are carefully studied in any part, it is observed that a vessel first undergoes enlargement and becomes prominent, forming a red spot, and then it disappears by atrophy, the brown spot left partaking of the conformation of the usual spot.

The face presents a mottled appearance, and, in addition to the freckles and the red spots, there are found white spots ranging from a quarter of an inch to an inch in diameter. There is a want of elasticity of the skin, which is like parchment, or seems as if it had been coated with inflexible collodion. The appearance presented not unfrequently resembles the cicatrix of an extensive but superficial burn. There is an almost total absence of the normal secretions, and there is apt to be a peculiar immobility of expression upon the countenance. In some cases, however, the atrophy is much more marked than in others, and it is always less prominent upon the hands than upon the face. The atrophic condition is similar to that met with in senile atrophy of the skin.

While the atrophic changes are to be dreaded on account of their liability to result in deformity, the keratotic or warty patches which grow from some of the pigment spots are liable eventually to become malignant growths. There are two principal forms of new growths: (1) the keratotic; and (2) the larger, or elastic, which are, in reality, simply an exaggerated form of the first. Malignant new growths were recorded in 16 out of 30 cases, and non-malignant in 6 cases. In 9 cases in which there were as yet no new growths, 6 of the patients were under the age of twelve. Out of Dr. Taylor's own 7 cases, epitheliomata were found in 3. It is to be borne in mind that in any of the 6 cases with benign new growths, these growths might at any time become malignant. The statistics would seem to show that in this disease the greatest malignity is exhibited under the age of ten years; nearly as great between the ages of ten and twenty; and after that a diminished tendency to malignancy. It is certainly a singular fact, that epithelioma should develop in such young subjects. There was no evidence of metastasis in any of the cases.

Having remarked that it is impossible to give an exact description of all the tumors met with, Dr. Taylor proceeded to present the views of Kaposi, Neisser, and Pick in regard to the pathology of the disease.

The horny layer of the skin is thickened and desquamating, the stratum lucidum and stratum granulosum disappear, the Malpighian layer is thinned, and its deeper cells are strongly pigmented. The derma is atrophied; the papillæ are quite apparent, and certain masses of pigment are seen; numerous embryonic cells are met with, and a quantity of elastic fibres, which appear to have replaced the connective tissue to some extent. The vessels, the smooth muscular fibres, the sudoriferous glands, and the pilo-sebaceous follicles are diminished in number and tend to disappear. The fungous tumors usually present the histological character of epithelioma, and the most common disposition is that of a lobulated epithelioma with the fibrous stroma infiltrated with embryonic cells. In some instances the new growth was found to be of the nature of angio-myxoma.

Intelligent medication, extending over several years, had proved quite ineffectual, and no case of the disease had ever been cured. In the treatment measures should be taken to keep the skin at rest and free from all sources of irritation. All pigmentation warts should be removed as soon as possible with the spoon. All large tumors should also be extirpated, and the subjacent tissues thoroughly scraped, if necessary to the bone or periosteum.

In answer to a question from the President in regard to the absence of connective tissue, Dr. Taylor said that in this disease the papillæ are primarily involved, and the subcutaneous connective tissue only secondarily.

Dr. Jacobi then said that according to some authorities most, and to Cohnheim all, malignant tumors, occurring at any age, are the result of embryonic cells not undergoing the accustomed changes and remaining behind in normally developed tissue; and if this theory is to be accepted it will sufficiently explain the appearance of those malignant growths in early childhood. Furthermore, the fact that the bloodvessels are largely increased is no doubt the result of the embryonic tissue remaining; and these bloodvessels, it is to be noted, are not in a normal condition. He thought it probable that the occurrence of spontaneous thrombosis might explain the disappearance of the red spots and other phenomena noticed in the disease in question. On the whole, therefore, it seemed to him as if there was an arrest of the metamorphosis of embryonic tissue; and, if this were the case, he thought that in the treatment of this affection it might do good to increase the quantity of normal

connective tissue, if possible, and thus fortify the parts against the further development of abnormal growths.

For this purpose (provided the supposition mentioned was correct) there are two remedies which suggest themselves as preëminently indicated. These are, first, arsenic, and, second and better still, phosphorus. By the irritation excited by proper doses of these agents it seems possible to cause a good, solid normal nutrition to result. It is well known that phosphorus favorably influences the normal growth of bone, and for some years past he has used it with satisfactory results in caries and other bone disease. He has found it of special service in cranial rachitis. The phosphates or other compounds are of no value, and it is necessary to use phosphorus itself, administering it in oil or emulsion. It may be given in doses of one one-hundredth of a grain, corresponding to one minim of the old oleum phosphoratum twice a day, and its use maintained for a long period.

DR. TAYLOR, in conclusion, said that he thought these suggestions of the President very valuable and practical, and that if he should meet with another case he would institute a systematic course of medicinal treatment in accordance with them. At the same time, he thought the surgical measures to which he had referred in the paper were of decided benefit in controlling some of the more serious results of the disease; and contrary to what might perhaps be expected, he had found that, as a rule, the tissues healed well after the removal of the new growths.

CORRESPONDENCE.

PEROXIDE OF HYDROGEN IN THE TREATMENT OF DIPHTHERIA.

To the Editor of THE MEDICAL NEWS,

SIR: The most potent remedy for diphtheria is being entirely overlooked by the medical press and profession.

The peroxide of hydrogen will, in all stages of diphtheria, pseudo-membranous croup, and ulcerations of the mouth and throat, and stomatitis, act most admirably.

All physicians who have practised in districts periodically, or occasionally, visited by diphtheria, will recall the cyanosed condition of the little sufferer presaging death. Even after this condition plainly predicts poisoning of the blood by carbon the patient can be quickly relieved by fifteen or twenty drop doses of the peroxide internally, diluted with one or more tablespoonfuls of water. The throat should be gargled or swabbed with a solution composed of equal parts of peroxide of hydrogen and water, every half hour or oftener, or the solution may be used with an atomizer. All articles used for wiping the face or mouth should be kept sprinkled with the peroxide and all cuspidores or vessels should contain enough of the peroxide to destroy all germs contained in the sputa or excreta.

This remedy is not intended to supplant such auxiliary treatment as may be indicated, but will be found, used in conjunction with iron, potassium, stimulants, cardiac tonics, and nutritives, the nearest approach to a specific of any remedy heretofore used in diphtheria. Practical experience has made me rely on peroxide of hydrogen in diphtheria, and I earnestly ask that it be used, knowing that the results will be *startlingly successful*.

Yours truly,

WHITE BEAVER.

LA CROSSE, WIS., January 30, 1888.

THE CROWN PRINCE'S CASE.

To the Editor of THE MEDICAL NEWS,

SIR: Your issue of December 31, 1887, is just to hand, and I have been interested in reading the letter from Berlin contributed by Dr. F. Donaldson, Jr. In his remarks referring to my friend Morell Mackenzie's treatment of the case, he repeats some ridiculous stories, which have originated in the fertile German brain (but which are apparently still current in Berlin), as to Mackenzie not having permitted any German to examine the Crown Prince's throat until recently; and that Landgraf, who was sent to England with the Crown Prince, was also prevented from making examinations. To this statement I can give the most unqualified denial, and I scarcely think it can have originated with Dr. Landgraf himself.

From the time the Crown Prince came to England, to the time he left it, I was myself in daily attendance. I lived in the same hotel with him and with Dr. Landgraf until the Crown Prince left Norwood. Dr. Landgraf at first every morning, afterward whenever he chose to accompany me on my daily visit to the Prince, examined the Crown Prince's throat, for as long, and in whatever manner he pleased, and it is simple calumny to say that Mackenzie or anyone else prevented Landgraf from seeing the Imperial throat as often as he thought fit.

These matters are scarcely worth mentioning, except that they show the present animus of the German mind, which, for some months has, by a series of petty (or worse) vilifications, sought to damage Mackenzie. These attempts to sow the seeds of discord have met with a very receptive soil amongst a certain section of pseudo-Englishmen. The German nation has to thank Mackenzie for much. That their diagnostic powers are not infallible, they may not be prepared to admit, but may live to see. It is easy to understand that the course and prospects of the case are a hard pill to swallow, for what one of your American writers has described as "the vainest race in the world."

I am sir, yours, etc.,

R. NORRIS WOLFENDEN, M. D.

LONDON, January 26, 1888.

NEWS ITEMS.

The Water of New York Bay in its Relation to Cholera.—The *Weekly Assistant of Sanitary Reports* of February 3, 1888, issued by the Supervising Surgeon-General of the United States Marine Hospital Service, contains the following report of an analysis of the water of New York Bay, by Assistant Surgeon J. J. Kinyoun, Marine Hospital Service:

The cities and towns discharging their sewage into the New York Bay have an estimated population of 3,000,000 of people. In view of this fact, a chemical and biological examination of the bay water was undertaken, for the purpose of determining its contents, and also to find how

long it would support life of the different microörganisms, more especially that of Asiatic cholera. Accordingly, specimens were obtained at different places, being collected in sterilized flasks. The first was obtained at the Narrows; the second, alongside the steamship "Brittania" (lying in quarantine); the third, at Hoffman Island, and the fourth, at Swinburne Island. These different specimens were collected within thirty minutes, and just at incoming tide.

Chemical examination of one litre:

Narrows—	
Chloride of potash and soda	20.8 grammes.
Carbonates	A trace.
Iodine	"
Free ammonia	"
Albuminoid ammonia	0.158 gramme.
Steamship "Brittania"—	
Chloride of potash and soda	20.82 grammes.
Carbonates	A trace.
Iodine	"
Free ammonia	"
Albuminoid ammonia	0.158 gramme.
Hoffman Island—	
Chloride of potash and soda	21.64 grammes.
Carbonates	A trace.
Iodine	"
Free ammonia	"
Albuminoid ammonia	0.158 gramme.
Swinburne Island—	
Chloride of potash and soda	21.814 grammes.
Carbonates	A trace.
Iodine	"
Free ammonia	"
Albuminoid ammonia	0.158 gramme.

Reaction was slightly alkaline.

Plate cultivations were made from each of the different specimens, and at the end of five days had developed colonies of bacteria. Examination showing the number of microörganisms:

Narrows	4,500	to cubic centimetre.
"Brittania" anchorage	10,200	" "
Hoffman Island	9,600	" "
Swinburne Island	11,700	" "

The microörganisms found in each were several varieties of micrococci and one of a large bacillus. These were transferred to cultivation-tubes for further observation. On November 12, test-tubes, partly filled with sea-water, were thoroughly sterilized and inoculated in the usual manner, with pure cultivations of the spirilla of Asiatic cholera, and also of Finkler and Prior. Cultivation-tubes were inoculated from the water from day to day for the purpose of determining the longevity of the growths. During the first five days the water seemed to exert a slight inhibitory influence over their development. It was further observed that until January 20, a period of sixty-nine days, the characteristic growths of the spirillum of cholera Asiatica could be produced in peptone gelatine. That of Finkler and Prior has a yet longer lease of life.

Examinations made from time to time, both by the plate method and direct staining, show conclusively that these spirilla have not only been kept alive, but have also greatly increased in numbers.

After closely studying the currents of the upper bay, Dr. Kinyoun is led to believe that if dejecta from cholera patients should be thrown into the lower bay, cholera could gain a foothold on the contiguous shores, where every condition favorable to its development and propagation sometimes exists.

A Bill to Increase the Efficiency of the Medical Division of the Pension Bureau.—Mr. Burrows has introduced into the House of Representatives a bill by which it is proposed that the medical staff of the Pension Office shall consist of one medical referee, one assistant medical referee, three surgeons, and twenty-four medical examiners.

That the medical referee shall be a man of preëminent professional ability, and shall receive the sum of four thousand dollars annually. He shall be the chief of the Medical Division, and as such shall oversee and arrange the work of said division.

That the assistant medical referee shall also be of pre-eminent professional ability, and shall receive an annual salary of three thousand and six hundred dollars.

That the three surgeons shall be experts in their profession, and shall each receive an annual salary of three thousand dollars.

That the medical examiners shall be surgeons of education, skill, and experience, and shall receive each an annual salary of two thousand and five hundred dollars.

He has also introduced a bill to increase the efficiency of Boards of Surgeons for the examination of pension applicants, by which each member of each Board of Surgeons for the examining of applicants for pensions, shall, as now authorized by law, receive the sum of two dollars for the examination of each applicant.

That the Secretary of each Board of Surgeons shall receive a further compensation of fifteen cents for each examination.

That the Secretary of each Board of Surgeons shall be, and hereby is, empowered to employ a clerk, and for the official conduct and pay of such clerk the said Secretary shall be responsible.

The Restriction of Immigration.—A pregnant suggestion was made by Dr. John H. Rauch to the Illinois State Board of Health at its annual meeting last week. The veteran secretary, in discussing features of maritime quarantine, suggested that immigration be restricted by Congressional action, to those points where an efficient quarantine exists. This would be a good measure to carry out, but its ultimate effect would be still better. Let all the immigration to this country go to New Orleans, for example. How long would it be before diverging railway lines from New York City, and other commercial interests which feed upon immigrant travel, would demand, in unmistakable tones, that New York quarantine should be put in efficient condition?—*Sanitary News*, January 21, 1888.

The Children's Ward of the Presbyterian Hospital.—This most recent addition to the Presbyterian Hospital, of Philadelphia, was recently opened with appropriate ceremonies. The building and its equipments are the gift of Mrs. John Wanamaker. All which modern architecture and sanitary science could suggest have been done to perfect the structure, and in its appointments it is one of the best in America.

Hysteria and Malpractice.—At St. John's, N. B., suit was recently brought against a physician for malpractice, in producing convulsions by the administration, to a woman, of strychnia in doses of $\frac{1}{24}$th of a grain. The medical testimony for the plaintiff considered the dose as larger than prudence would indicate in the beginning of treatment by strychnia. The defendant asserted that the convulsions alleged to have followed the taking of strychnia were hysterical.

A verdict for the defendant was returned. The practitioners who testified varied in their doses of strychnia given from $\frac{1}{60}$th to $\frac{1}{12}$th of a grain.

Capital Punishment by Electricity.—Fell, of the Niagara University, Buffalo, has made a series of experiments upon animals to determine the possibility of resuscitation after the reception of a severe electric shock. He found such a shock thoroughly efficient, and gives his conclusions as follows:

First. That death, produced by a sufficiently powerful electric current, is the most rapid and humane of that produced by any agent at our command.

Second. That resuscitation after the passage of such a current through the body and functional centres of the brain, is impossible.

Third. That the apparatus to be used should be arranged to permit the current to pass through the centres of function and intelligence in the brain.—*Buffalo Medical and Surgical Journal*, February, 1888.

A Patent on Chloroform.—By a decision rendered in the United States Circuit Court of New Jersey the claim of the Albany Chemical Company is sustained, and the validity of their patent for the manufacture of chloroform from calcium acetate is established.—*Pharm. Record*, January 15, 1888.

Trichina in Ducks.—Twenty persons in Inoweal-law, Posen, were recently attacked with symptoms of trichinosis, and an investigation showed that they were poisoned by eating the flesh of trichinous ducks.—*Sanitary Inspector*, January, 1888.

The Fifth International Veterinary Congress will be held in Paris in September, 1889, under the presidency of Chaveau.

An Octo-centennial.—The University of Bologna will celebrate in June next the 800th anniversary of its establishment.

The London Medical Recorder.—It is announced that the *London Medical Record* is not to be discontinued, but transferred to a new business management, who announce its continuance under the same editors, but with a new name, and changes in its subscription terms calculated to adapt it to a more extensive circulation.

L'Electrotherapie is the title of a new journal devoted to electro-therapy, recently published in Paris. The editor in Léon Darion.

The Neglect of the Study of Medical Literature.—In a recent number of the *Berliner klinische Wochenschrift*, Virchow laments the disinclination of the present generation of medical students to study the literature of medicine. He contrasts the spacious reading-rooms, lighted by electricity, in use to-day with the narrow-windowed, inconvenient libraries of old, and urges the cultivation of literary study in men, who "at present cannot find time to go back even to Lænnec, in their literary researches."

Professor Scanzoni, of Wurzburg, has been placed on the retired list by his own request.

Dom Pedro, Emperor of Brazil, has been elected an honorary member of the Paris Society of Biology, in whose meetings he took a lively personal interest, when in Paris.

Professor Virchow will accompany Dr. Schliemann to Upper Egypt in the present month, remaining there until May.

Typhoid Fever in the Cities of Europe.—Among the cities of Europe the death rate from typhoid fever varies very much. According to Bertillon among 100,000 inhabitants there are in Vienna 14 deaths, in Stuttgart 15, in London 17, in Munich 18, in Brussels 19, in Paris 59, in St. Petersburg 90, in Marseilles, 149, in Barcelona 157, in Saragossa, 186.—*Sanitary Inspector*, January, 1888.

The Direct Gains of Sanitation.—In the town of Leek, England, with a population of nearly 14,000, the local sanitary inspector shows that in the last five years the mean expectation of after-life from birth in persons born in that town is 22 years more than it would have been had things remained as they were in the decade of 1851–61, when no real attempt had been made to grapple with the unhealthy condition of the town. Further, the actual money value to the community during the years 1861–85, from the increase of longevity and freedom from sickness, amounted from various sources to $433,900, which is equal to a direct saving of $17,356 per annum.—*Sanitary Inspector*, January, 1888.

Choosing Houses.—The *Sanitary Inspector* for January, 1888, quotes a journal of building as follows on this point:

In selecting a house, or a site for a new one, remember that where the sun will shine on the house for some hours a day one element of good is secured, especially if the sunshine enters at the windows of the living rooms or rooms most used during the daytime. After the aspect has been found to be suitable, and that a plentiful supply of sun and air is insured, attention should be given to the general position and construction of the house. If the ground is at all porous, a layer of concrete not less than six inches thick, and composed of cement or lime and broken bricks or gravel, should be spread over the whole of the ground covered by the building. This will prevent the passage of ground air up through the floors. Air will travel through the ground for some distance, and, as it invariably becomes contaminated by taking up carbonic acid gas in its passage, it is not suitable for inhaling. The house acts as a sucker on the ground, and if, unfortunately, the site is on "made" ground—that is, composed of all the refuse of a town—the ground air becomes the medium of disease. No houses should be built without a well-ventilated air space between the earth and the

ground floor, especially if the layer of concrete on the surface is omitted. The walls should be built of good hard-burnt bricks or non-porous stones set in lime or cement mortar. Common under-burnt bricks or porous stones hold moisture, which evaporates with the rise in temperature, and so chills the air in the house. If the bricks or the stones of the walls are suspected of holding moisture, the whole of the external surfaces should be covered with cement, or tiled or slated above. The foundations of the walls should rest on thick beds of concrete bedded in the earth; and to prevent the ground damp rising up the walls, a damp-proof course of slates, in cement, or a bed of asphalt should be laid in the full thickness or width of the wall just above the ground line. Dryness in this climate is so essential to health, that any building which in its floors, walls, or roof sins by admitting moisture, should be rejected as a place of residence by those who value their health. In tropical climates buildings are constructed to keep out the heat, but here we build to retain the heat and keep out the cold.—*Building*.

Christmas Gifts to the Crown Prince's Physicians.—The attending physicians and surgeons of the Crown Prince of Germany have not been neglected by their illustrious patient during the season of "peace and good will to all men" recently passed. For example, it is reported that Sir Morell Mackenzie has received as a present a valuable case of instruments; Herr Krause a diamond pin; Herr Schrœter two superb Japanese vases; Herr Bergmann twenty-four silver table ornaments; and Herr Schmidt, a gold inkstand. Apart from the intrinsic value of the gifts, it is quite possible to conceive that the possessors will treasure them as an earnest proof of the gratitude of the distinguished donor, on whose behalf their best efforts have been lately expended in order to avert distressing circumstances.—*Medical Press and Circular*, January 11, 1888.

The Electrical Treatment of Sewage.—The treatment of the enormous masses of sewage which pour forth from our large cities has for years been a problem, the solution of which has been attempted by means of series of very costly and more or less unsatisfactory experiments. At the present moment colossal works are in the course of construction for the precipitation of London sewage by the best known process, involving an expenditure of hundreds of thousands of pounds. Attention has just been called to a novel departure in the treatment of sewage. It has been discovered that the passage of an electrical current through it speedily generates enough gas to collect the solid particles into a scum on the surface, leaving the residual liquid clear and comparatively pure. Measures are shortly to be taken to test the value of this procedure in practice. Much as we are led to expect of electricity, from the disintegration of a fibroid to the removal of superfluous hairs, this, its last application, has the merit of novelty if nothing more.—*Medical Press and Circular*, January 11, 1888.

Carcinoma of the Larynx in Different Countries.—M. MOLLIÈRE, of Lyons, thinks that carcinoma of the larynx must be much more common in Germany and Italy than in France and England, for while he himself, though he sees annually some 7000 surgical patients, has never had a case suitable for extirpation of the larynx, and this operation is known to be a very uncommon one in France and in England, no less than 76 cases were mentioned at the Dresden Congress, and 101 operations are referred to in the Italian *Archives of Laryngology*.—*Lancet*, January 14, 1888.

Accident in a Chemical Laboratory.—While Professor Cazeneuve of the Faculty of Medicine at Lyons, France, was recently supervising a chemical analysis, the glass vessel containing the substance exposed to heat exploded with great violence. A small fragment of glass was driven into the eye of the Professor; it was promptly removed, and it is hoped that no serious damage will result. His face was also considerably wounded.

A Death from Neuralgia.—The *Lancet* of Jan. 7, 1888, reports the following case: Neuralgia, although one of the most painful maladies that the human race suffers from, has seldom been known to have proved fatal. A case, however, which occurred recently near Coagh, in the north of Ireland, would appear to have proved an exception. A lady suffered from neuralgia for forty days without any intermission of the pain, and it is alleged that she obtained no sleep during that lengthened period, although every means that medical skill could suggest were tried without effect. That the patient obtained no sleep for forty days is contrary to all physiological laws; but probably what sleep the unfortunate lady obtained was very trifling and inadequate, and it is most likely that death was due to the exhaustion occasioned thereby.

A Roman Sanitarium.—An important discovery has just been made at Suzo, about six miles from Castelforte, which points to the conclusion that the Romans were acquainted with the use of mineral springs for medicinal purposes. The erection of new mineral baths is contemplated by Signor Giuseppe Duratorre in that spot, and during the work of excavation the remains of what prove to be old Roman mineral baths have been met with. The buildings are situate about 250 feet from the right of the river Garigliano, which was formerly crossed there by a bridge, the remnants of a pier of which may still be seen in the river, and cover an area of 187 feet by 131 feet. A road paved with basaltic lava separates the two principal groups of buildings. To the left of this road, and leaning against the mountain-side, is the bath for hot mineral springs. The atrium is entered, as in classic dwelling-houses, through a portal adorned with columns, its floors being laid in black-and-white mosaic, and its roof probably formerly supported by four columns. Between these columns is the impluvium, a square marble basin, round which are seats, which leads to the supposition that it was used for bathing purposes. In the middle of the impluvium a hollow marble column supported a small basin of alabaster, into which the water rose through the column, flowing over its edges into the large basin. The further wall of the atrium opens into a large hall; through its side walls corridors lead into chambers to the right and left, the use of which for bathing is indicated by the whole arrangement of water basins and a network of water conduits, some of which are placed in the walls. On the outer side of the main road, with a view toward the river, two buildings are located, in front of which a row of columns with walled parapet probably enclosed a garden extending along the river bank. Between

the two buildings, containing rooms of various sizes, all of which open into outer corridors surrounding them, a colonade provided with seats has been erected. It is concluded that this group of buildings formed a hosptium or inn for the bathing guests—that is to say, a hostelry for those staying for their cure. The purpose of the whole establishment is also shown by the statuary found in a more or less damaged condition in the atrium. They include an Æsculapius, several female wall statues, and a statuette of a nymph, the upper part of the body nude, the lower draped. The marble of the statuary has been much injured by the mineral water, and its probable merit cannot, therefore, be easily estimated. Among the other finds a large cut amethyst may be mentioned, which contains in an oval two and a third inches by one and three-quarter inches a well-executed bust of a winged Nike. The sanatorium must have flourished for a long time, for, together with coins of Augustus's and Vespasian's time, Arabian and Norman gold coins have been found.—*Exchange.*

Great Brains.—The Paris correspondent of the *Lancet* of January 7, 1888, writes that at the Société de Psychologie Physiologique M. Manouvrier read a report upon the brain of the late Dr. Bertillon, the eminent statistician, and compared it with the brain of Gambetta, which has been studied by Mathias Duval and Chudzinsky. In weight Gambetta's brain was below the average, only scaling about 48 ounces. That of Bertillon exceeded the usual weight, reaching about 63 ounces. It is now admitted that, other things being equal, the weight of the brain is in proportion to the intelligence of the individual, and, moreover, the greater the intelligence the greater the absolute and relative development of the frontal lobes. A comparison of the brains of Gambetta and of Bertillon shows that the former is smaller, more particularly in the anterior portion, less so posteriorly, and that the temporal region is even larger. Now, the qualities of the two men were diametrically opposite. Gambetta was active and loquacious, Bertillon was reticent and retiring. Although an admirer of oratory, he had always failed as a speaker. In Gambetta's brain the convolution of Broca is extremely developed, in Bertillon's it is reduced to its most simple expression. Bertillon was in his youth left-handed, but he became ambidextrous later in life. The third frontal convolution on the right side (the speech centre of the left-handed) is larger than the corresponding one on the left side.

Female Medical Students at Zurich.—A professor of clinical medicine at Zurich, in a recent lecture, gave by his subject matter offence to his female hearers, they accordingly abandoned his lectures *en masse*. In return, the male students rallied to the support of their esteemed teacher, frequented his lectures and clinic, and addressed to him a formal expression of their sympathy.

It is evident that coeducation in medicine at Zurich is not without difficulties. Zurich affords, at present, the best opportunities to women of the centres of medical teaching on the Continent.

House Filters.—The *Lancet* Analytical Sanitary Commission has recently reported upon four kinds of filters, at present in the market. The tests made resulted in favor of the filter, whose essential portion was "spongy iron." Gas coke was recommended for trial as a filtering agent.

John Dean, M.D., M.M.S.S.—At the age of fifty-seven, this pioneer anatomist and microscopist of the nervous system died recently in Florence, Italy. He graduated from Harvard Medical School in 1860, and immediately completed microscopical researches upon the "Lumbar Enlargement of the Spinal Cord," and the "Gray Substance of the Medulla Oblongata and Trapezium," which were the first American researches in the minute anatomy of the central nervous system. His health, however, rapidly failed, and his later years were spent in hopeless invalidism. He generously gave his books, apparatus, and a choice collection of microscopic specimens to the Harvard Medical School.

Tito Vanzetti.—This distinguished surgeon, an octogenarian, died in Padua, on January 6, 1888. He had been for many years Professor of Clinical Surgery in the University of Padua, and had been the recipient of the highest honors. From his ample fortune he left $20,000 for the advancement of clinical surgery in his university.

CORRIGENDUM.

IN the article by Dr. Vaughan and Mr. Novy on "The Causation of Typhoid Fever," in our issue of January 28, page 95, second column, third and fourth lines from the top, *for* "which, when boiled," *read*, "which had been boiled."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM JANUARY 31 TO FEBRUARY 6, 1888.

PROMOTIONS.

PAGE, CHARLES, *Lieutenant Colonel and Surgeon.*—To be Assistant Surgeon General with rank of Colonel, Nov. 17, 1887.

MCKEE, JAMES C., *Major and Surgeon.*—To be Surgeon with rank of Lieutenant Colonel, November 17, 1887.

GIRARD, ALFRED C., *Captain and Assistant Surgeon.*—To be Surgeon with rank of Major, November 17, 1887.

RAYMOND, H. I., *First Lieutenant and Assistant Surgeon.*—Ordered to Fort Bidwell, California.—*S. O. 25, A. G. O.*, January 31, 1888.

FISHER, W. W., *First Lieutenant and Assistant Surgeon.*—Ordered to Presidio of San Francisco, California.—*S. O. 25, A. G. O.*, January 31, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING FEBRUARY 4, 1888.

CARMICHAEL, D. A., *Passed Assistant Surgeon.*—Detailed as attending surgeon and Acting Chief Clerk, Supervising Surgeon-General's Office, February 2, 1888.

URQUHART, F. M., *Passed Assistant Surgeon.*—Granted leave of absence for twenty days on account of sickness, Feb. 3, 1888.

WILLIAMS, L. L., *Assistant Surgeon.*—Ordered to examination for promotion, February 2, 1888.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LII. SATURDAY, FEBRUARY 18, 1888. No. 7.

ORIGINAL LECTURES.

KNOCK-KNEE AND BOW-LEGS, WITH REMARKS UPON RACHITIS.

Two Clinical Lectures Delivered at the Philadelphia Hospital.

BY A. SYDNEY ROBERTS, M.D.,

LATE SURGEON TO THE HOSPITAL, INSTRUCTOR IN ORTHOPÆDIC SURGERY IN THE UNIVERSITY OF PENNSYLVANIA, AND ORTHOPÆDIC SURGEON TO THE OUT-PATIENT DEPARTMENT OF THE UNIVERSITY HOSPITAL, ETC.

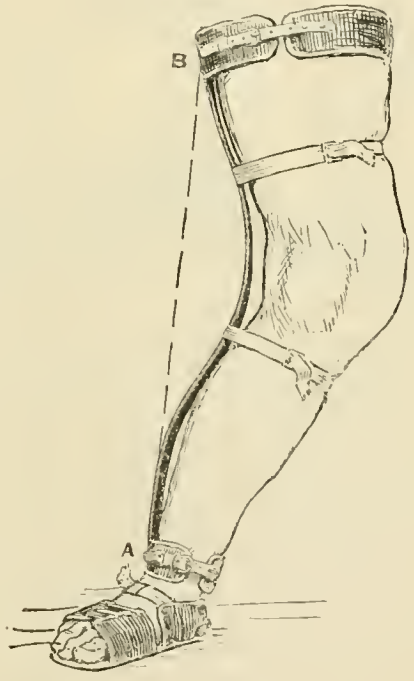
LECTURE II.

CASE III. *Knock-knee; application of elastic traction brace.*—Frances G. is two and a half years old, and has, as the father states, always been a weak, nervous child, and subject to croup. During the period of her dentition was much troubled by diarrhœa, and very thirsty; also perspired a great deal, and was restless and peevish. The ribs have the "beaded" feel; there is quite a prominent sternum, and all the epiphyses are flattened. The skull also shows evidences of rachitis. On placing the child on her feet, the deformity of the lower extremities, consisting principally of the in-knee deviation, is at once perceived. There is the usual extensive lateral motion at the knee-joints which is also manifested in the other articulations. When I flex the legs on the thighs, the deformity disappears; there is marked projection at the inner side of the knees, due to the hypertrophied internal condyle of the femur. The first thing that attracts attention to these cases is the peculiar gait when the children begin to walk, which they do not attempt, as a rule, until quite late, and, with this, much fatigue is complained of. Pain is not a frequent or urgent symptom, and, when it occurs, is referred to the inner side of the knee.

In the treatment of this case, the same rules should be followed as are applicable to the cure of bow-legs; and as sclerosis has not as yet occurred, I shall use, in addition to the retention braces to be worn throughout the day, an elastic traction brace at night. (Fig. 2.)

It is applied to the external aspect of the limb, and the upright extends well up to the thigh, and is secured at two points, just above and just below the knee-joint so that, in its efforts to right itself, it will produce continuous elastic pressure upon the *hypertrophied internal* condyle. It would be impossible in a clinical lecture for me to describe extensively the various forms of apparatus devised for the relief of this deformity, but among others used for removing it are those which aim at this result by the use of exaggerated interarticular pressure directed against the already hypertrophied internal condyle, thus attempting to produce absorption at this point. This also involves the use of intermittent rather than constant pressure. I am of the opinion that, while *intermittent traction* through soft tissues is of infinite value in the relief of certain deformities, this does not hold concerning intermittent pressure. Apart from the fact that these instruments are complicated and expensive, difficult of adjustment, and liable to constant malposition by slipping, etc., they must depend largely for their efficacy on the constant personal supervision of the surgeon or attendant. Again, the fallacy of attempting to produce absorption by intermittent pressure from without is clearly shown by Sir James Paget, in his "Lectures on Pathology," who, in speaking of atrophy as manifested in the Chinese foot, and also in stumps after amputation, says: "These examples, then, may suffice to show, as I have said, that constant pressure on a part produces absorption. Occasional pressure, especially if combined with friction, produces thickening or hypertrophy, and that these result whatever be the direction of the pressure."

FIG. 2.



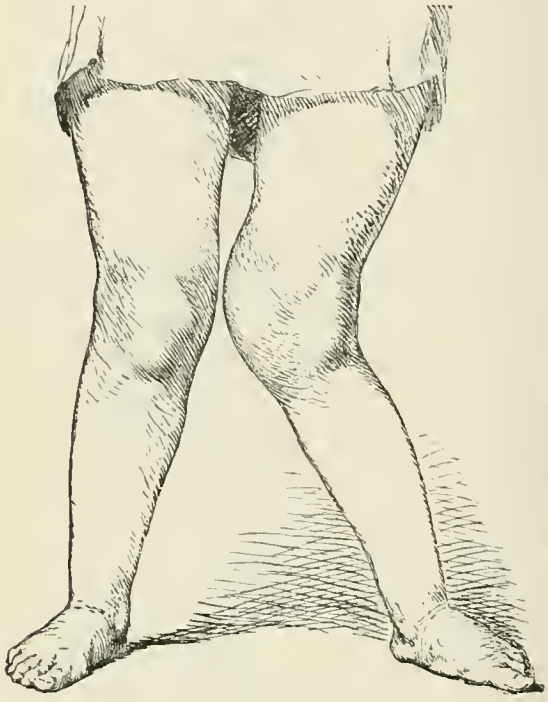
The positive atrophy and absorption of tissues from elastic pressure, on the contrary, are remarkably shown in the destruction and removal of large areas of bone, which frequently occur in aneurism of the aorta, and this brace is constantly exerting a similar influence upon the internal condyle.

CASE IV. *Unilateral genu valgum; osteotomy; cure.*—The next case is one upon which I operated at the clinic a few weeks ago, and is the first osteotomy for *genu valgum* performed at this hospital

Frank D., aged five, colored, an inmate of the children's ward, presented the following characteristic

rachitic deformities: The vertebræ are rotated upon their axes, and laterally deflected into the deformity of rotary lateral curvature and rachitic, the primary curve existing in the lumbar region. The deformity of the lower extremity presented as a unilateral genu valgum of the left limb. The femur is markedly curved in an anterior and lateral direction, the internal condyle being depressed below the normal plane of the joint, producing a decided in-knee deviation, as seen in Fig. 3, taken from a photo-

FIG. 3.



graph prior to the operation. The duration and pronounced character of the deformity apparently render this patient a fit subject for the operation of osteotomy or subcutaneous fracture of the bone for restoration of the limb to a normal position. Yet, in order to be perfectly sure that the stage of softening had passed, and that nothing more was to be expected from conservative mechanical treatment, I made use of the bone-drill spoken of, before operating, and finding all the indications of sclerosis present, I performed the operation of osteotomy, and am happy to show you the correction of the deformity as seen by these photographs, made prior and subsequent to the operation. (See Figs. 3 and 4.)

Before proceeding to the next case, I think it will be well briefly to call your attention to the different surgical procedures now in vogue for the relief of these deformities, and also to a short, historical account of them. These may be placed under three heads as follows:

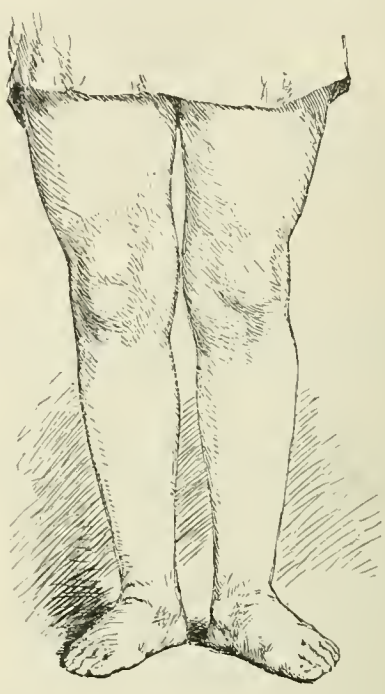
1. Forcible straightening.
2. Osteoclasis.
3. Osteotomy.

Of the first two mentioned methods, I will not enter into detail. They are approved by many surgeons, especially the French, and successful cases have been reported as having been brought about by these means; Delore, of Lyons, and Tillaux, being their principal advocates. Excellent osteoclasts have also been devised by Colin and Robin.

The brilliant results attained by osteotomy have, however, given this operation the palm, and most surgeons now perform this in preference to osteoclasis.

Although osteotomy for an ankylosed hip-joint had been performed by Rhea Barton, of this city, as early as 1826, it was not until 1852 that Mayer, of Hamburg, first operated for knock-knee. He opened the joint in his

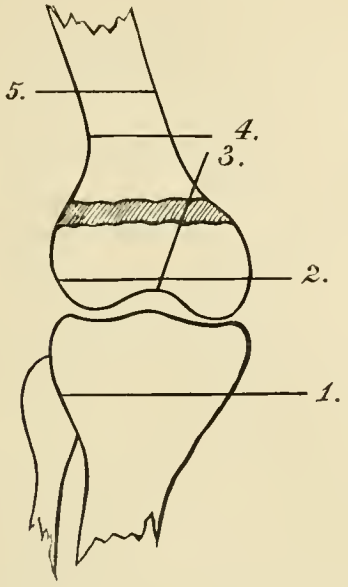
FIG. 4.



operation, and one of his cases died of tetanus. In the same year Langenbeck proposed osteotomy in cases of ankylosed knee. Following this many osteotomies of different articulations were performed, and American surgeons, Pancoast, Sayre, and Brainard, were among the first to practise them. As applied to the deformity genu valgum, the first operator in England was Annandale, who virtually excised a part of the condyles of the femur for knock-knee, the operation being done under antiseptic precautions. Antiseptic osteotomy was introduced by Volkmann, of Halle, in 1875, the same year that Annandale operated. In 1876, Ogston performed the operation, using the saw, and was followed by Schede, of Berlin. The objection to all these operations was the fact that the knee-joint was opened, exposing the patient to even a greater danger than the original deformity. In 1877 Chiene cut through the condyle with a chisel, removing a wedge-shaped piece. In 1878 Barwell performed his "simultaneous multiple osteotomy" which consisted in a division of both femur and tibia. In 1878 Macewen introduced his supracondyloid osteotomy, and this, involving no possible danger to the knee-joint, has been popularly adopted. In 1879 Reeves modified Ogston's operation so that the danger of opening the articulation was reduced to the minimum, the object being, at the same time, to replace the displaced condyle.

The following diagram (Fig. 5) will illustrate the various points of election for the performance of osteotomy.

Fig. 5.



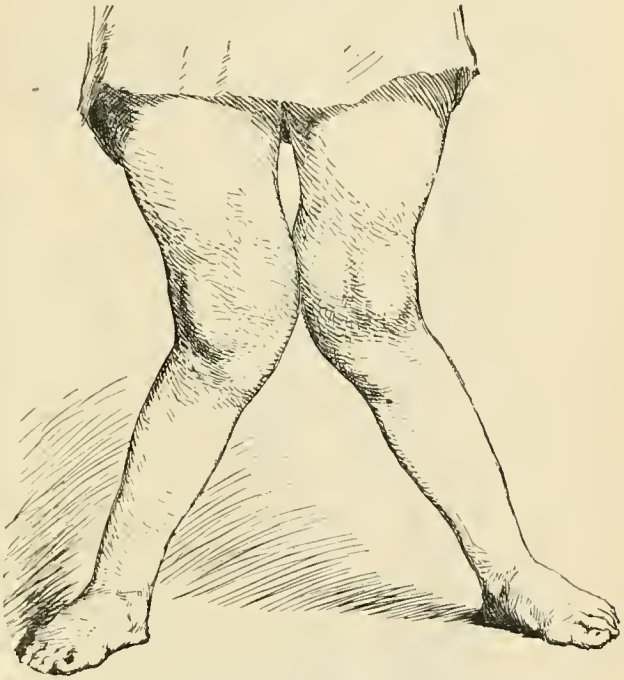
1. Mayer; Billroth; Schede. 2. Annandale. 3. Ogston; Reeves; Chiene. 4. Macewen. 5. Taylor.

Of all the operations mentioned, I give my personal preference to that of Macewen, and, in the case which I now present to you, propose to perform the operation.

Case V. *Bilateral knock-knee; double osteotomy by Macewen's method; recovery.*—The history in brief is as follows: Lottie H., aged five, colored, was admitted into the Philadelphia Hospital in 1881, suffering from severe bilateral knock-knee. No record could be obtained of her previous history, or the time at which the deformity first appeared. You will notice, however, that a marked curvature or in-knee deviation exists in both lower extremities (Fig. 6). The femora have an anterior bend in their lower third, as well as a lateral deviation. Curves of similar character are present in the tibia. On measurement, I find, when the internal condyles of the femur are approximated, the malleoli at the ankle-joint are separated nine and a half inches, as shown in Fig. 6, from a photograph. On account of the long standing and pronounced character of the deformity, having satisfied myself by the drill that sclerosis has taken place, I propose to do a double supracondyloid osteotomy, after the plan recommended by Macewen, of Glasgow.

The patient being anæsthetized, and having cleansed the limbs and rendered them aseptic at the point of election for the introduction of the osteotome, the elastic roller of Esmarch is applied, and the limbs rendered bloodless. After securing the vessels by a few turns of rubber tubing, the bandages are removed, and the limbs are ready for puncture, which is made at a point two fingers' breadth above the internal condyle. The osteotome is now introduced down to the bone, and turned transversely to the long axis of the shaft. By a few blows of a heavy wooden mallet, the instrument is driven through the bone, and then withdrawn from the wound, a little force being now required to complete the fracture. Now loosen the turns of the rubber tubing, to ascertain if any hemorrhage has taken place, and, as you see, this is very slight and mostly venous. The punctures are dusted with iodoform,

Fig. 6.

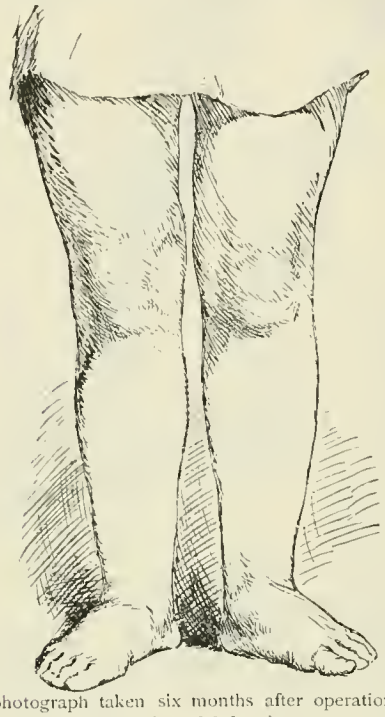


and covered with a pledgets of lint that have been previously soaked in compound tincture of benzoin, which quickly dries, forming an excellent artificial seal. The next step is to envelop the limbs in a flannel roller, and place over all the plaster-of-Paris bandage from the toes to the upper third of the thigh. It is well always to have the plaster thoroughly dried in an oven over night, as it facilitates its setting, and makes a much stiffer and more durable splint; while the plaster is setting, the limbs are "over-straightened," and the knees brought in a position of slight genu varum, by placing a roller bandage between them, and bringing the malleoli together. Three days from the date of operation I shall cut a small fenestrum in the dressing opposite the point of puncture, and examine the wound. Should no unfavorable symptoms intervene—*i. e.*, suppuration or retarded union—the dressing will be removed at the end of six weeks, and the patient placed upon her feet with light steel retention-braces, jointed at the knee and ankle, to allow of motion.

Before closing, I desire to say a few words upon the other causes of knock-knee and bow-legs mentioned in the early part of this lecture. Disturbance of trophic centres acting either upon muscular tissue, destroying equilibrium, or upon the nutrition of the epiphyses, has been assigned as a cause of knock-knee and bow-legs. The most direct results of central disturbance are seen in connection with poliomyelitis anterior (infantile spinal paralysis), and in tetanoid or spastic paraplegia. Here deformity is induced directly by the lack of supporting power in the muscles, as well as the loss of tone in the ligaments, and cannot be explained by the old antagonistic theory of loss of power in one set of muscles, with preponderating action in others. The same conditions obtain which Volkmann had shown to exist in the production of club-foot, the deformity not resulting from loss of muscular antagonism, but rather from growth whilst

the part remains in an abnormal position. It is also probable that in these paralytic cases the changes brought about in nutrition affect the bones to a large extent, as it has been shown that they are much thinner, more curved, and softer than normal. Here we cannot say that rachitis enters as an etiological factor, owing to the absence of its characteristic symptoms.

FIG. 7.



From a photograph taken six months after operation, showing correction of deformity.

The fact that cases of unilateral in-knee deviation are often observed without the association of symptoms denoting the presence of rachitis, has given rise to the idea that there is a condition which affects the nutrition of the epiphyses in such a manner as to produce knock-knee, and that this is a probable result of central changes having their expression in the epiphyseal cartilages of the knee-joint. This is purely theoretical, though not an entirely groundless idea.

I have thus endeavored to give you concisely the principal points in the pathology and treatment of bow-legs and knock-knee, and hope that, with the general indications I have attempted to impress, you will be enabled to cope successfully with these deformities.

ORIGINAL ARTICLES.

THE INFLUENCE OF OBESITY IN YOUNG WOMEN UPON THE MENSTRUAL AND REPRODUCTIVE FUNCTIONS.[1]

BY ANDREW F. CURRIER, M.D.,
OF NEW YORK.

IT is a matter of common observation that when a woman has passed the climacteric, or, in common terms, *the change of life*, a new era in her existence begins. As in the vegetable world, when the period of fruitage is passed, the foliage assumes luxuriant hues, and autumn becomes to us a synonym for bright colors and a restfulness of condition which tells of maturity and impending physical decay, so in woman we are accustomed to observe with the disappearance of the power of reproduction, the absence of menstruation (which is a normal accompaniment and customary evidence of that power), enlargement of figure, with particular tendency to the accumulation of fat upon the abdomen and the breasts, and the gradual development of mental repose, which is the more striking in those who have previously been characterized by restless activity, if not by mental and nervous disease and disorder.

The autumn of life in women more frequently presents these peculiarities than the corresponding period in men, though similar physical and mental changes in men do occur. It may therefore be considered the order of nature that mature life in women should mean the gradual cessation of the functions of menstruation and reproduction, and the development of obesity, and that there is a mutual relationship between the former and the latter, but that when they occur in young women they are unnatural, and an evidence, to a greater or less extent, of abnormal action.

To continue the simile from nature, young women in whom these conditions obtain are like a fruit tree which bears luxuriantly for a few years and then suddenly stops bearing, or like one which bears no fruit at all, but, instead, a vigorous growth of wood and leaves unless, perchance, new life is infused by judicious pruning and grafting. Of these two types, therefore, one is characterized by continuous child-bearing and lactation for a few years, four, five, or six children being born and suckled in as many years, sterility, amenorrhœa, and obesity following; in the other there is obesity, especially of the abdomen and breasts among married women, while in the young and unmarried the entire body is involved; there is also disturbed menstruation either in the form of amenorrhœa, oligomenorrhœa or dysmenorrhœa, and among the married there is either sterility or a single pregnancy.

The ancient writers including Hippocrates, Avicenna, Laurans, and Hoeflerus have recorded opinions which are in harmony with the foregoing statements,[1] and it is somewhat surprising that the

[1] Read before the annual meeting of the New York State Medical Society, February 7, 1887.

[1] Hippocrates considered obesity a cause of infecundity, and observed that it was also characterized by scanty and irregular menstruation. His theory as to the cause of sterility was that the *os uteri* closed by fat would not admit the semen. The scantiness of the menstrual fluid also signified the absence of a sufficient degree of intrauterine moisture to render conception possible. Complete works of Hippocrates translated (French) by E. Littré. II. 75. Quoted by Worthington: De l'Obesité, Paris, 1875, p. 56.

law which evidently obtains in this matter has been so generally overlooked by modern and contemporary observers; at least I have found very little reference to it in recent literature. That law may be formulated in the following terms:

1. A woman under thirty years of age who bears four, five, six, or more children in rapid succession and suckles them, prematurely reaches the limit of her physical powers as a reproductive animal, the phenomena of the climacteric supervening. This applies to the average woman under present conditions of civilization and, in a marked degree, to those who become obese after so frequent pregnancies.

2. A woman under thirty years of age who becomes obese, from whatever cause, will, as a result, be subject to amenorrhœa, or oligomenorrhœa (a term which I have proposed as a synonym for scanty menstruation), and usually to dysmenorrhœa, though menstruation may previously have been nearly or quite painless. If such patients be married sterility will be the rule. This law, like most other laws, has more or fewer exceptions, but observation and reflection during a not inconsiderable experience have convinced me of its existence.

Concerning the pathological anatomy of this subject, it is unfortunate that there are so few records of post-mortem investigations.[1]

None of the cases which have come under my observation have, as yet, terminated fatally. In most of them there has been heart weakness, which is particularly noticeable after any physical exertion, but I have never been able to detect more than a functional disturbance. In some cases there is not only a great increase in the volume of fat in those situations in which it is normally deposited, but the underlying muscular tissue is infiltrated, and this infiltration affects both voluntary and involuntary muscle. In the former I have seen it result in the separation of important muscles from their bony attachments, and it is these extreme cases, of course, which illustrate most forcibly the law which was enunciated. In the involuntary muscular system it is perfectly well known that the heart is susceptible to fatty infiltration, and it is probable, to say the least, in view of the clinical phenomena which are concerned, that similar changes affect the uterus.[2]

Schroeder divides the puerperal atrophies of the uterus into three varieties, the second being that which occurs after a normal labor and childbed with or without lactation in women of bad nutrition. Frommel[1] has seen 28 cases of this variety among 3000 cases of diseases peculiar to women. The patients were between nineteen and forty years of age, and showed no evidence of uterine or circumuterine inflammation. They suffered from severe abdominal pain, however, and atrophy of the tissue of the body and neck of the uterus, and of the vagina. The tissues were very soft, and easily penetrable by the sound. Frommel believed that in many women the uterus undergoes such excessive involution in consequence of lactation that subsequent restoration to a normal condition does not occur. He also believed that in cases in which a considerable number of pregnancies have followed each other in quick succession, the demands upon the genital apparatus have tended to produce permanent atrophy. Frommel's patients presented a "prematurely old" appearance. Whether this has any reference to obesity I cannot say, as the details of his cases are not given in his paper. The condition of the genitals, however, corresponds with that which I have observed in similar cases, and associated also with obesity.

Grigg,[2] in an article on "The Infantile Uterus," refers to a form of atrophy of the uterus and ovaries which occurs in early life as a sequence of parturition. He also states that a small and atrophic uterus may sometimes be found in well-developed women, associated with irregular, scanty, and painful menstruation. Atrophy of the uterus has been present in almost every case which I have seen which bears upon the subject. In fact, it was the repeated coincidence of uterine atrophy with obesity which drew my attention to the latter as a possible cause or factor in the production of the former. The length of the uterine canal in these cases has not been much less than normal, but the feel of the organ, both by the bimanual and the vaginal touch, is that of the uterus of old age, and the vaginal and cervical tissues are pale and senile in appearance.

The works of Möricke, Wyder, Leopold, John Williams, Putnam Jacobi, and a few others, during the past ten years, upon the endometrial mucous membrane and its functions has shown that sterility is usually caused by incompetency of that membrane to develop into a decidua, rather than by any fault in the ovaries and ova. A diseased condition of the endometrium with imperfect glandular apparatus and imperfect vascularization, together with a weakening of the muscular structure of the entire organ, would also account for scanty menstruation and dysmenorrhœa, all of which occur in the cases which are under discussion. It is to be regretted that the

[1] Worthington gives an account of an autopsy which was made upon a middle-aged woman who weighed nearly 400 pounds, but no examination of the uterus appears to have been made. The other abdominal viscera were abundantly supplied with fat. De l'Obesité, Paris thesis, 1875.

[2] It may be observed that the process of fat accumulation, according to Robin, involves the reception of that substance in emulsion in the fibro-plastic cells of connective tissue, contiguous to muscular tissue.

[1] Zeitschrift f. Geb. u. Gyn., 1882, vii. S. 307.

[2] Obst. Journ. Great Britain and Ireland, Feb. 1875, ii. p. 699.

evidence which is presented is only of a clinical character. Opportunities for more profound investigation may occur in the future; perhaps even this paper may stimulate some one who is better qualified than the writer to continue the investigation. With regard to the influence of displacements which might be suggested as coincident with obesity in causing sterility and dysmenorrhœa, I have seen no cases in which this factor entered, all the causative elements being physical rather than mechanical.

When sterility is present in these cases it is often the cause of great annoyance and unhappiness, even among those who have already borne several children. One of my patients was an Irishwoman, twenty-six years of age, who had borne six children in as many years, and was worried and unhappy because she had not become pregnant a seventh time. The maternal instinct was very strong, but she had become very fat; her uterus was atrophied, and the outlook for any further enlargement of her family entirely hopeless.

Two other patients were prostitutes who had never been pregnant. In one the uterus was atrophied, the menses had been entirely absent four months, and she feared that she was pregnant. In the other the uterus was nearly normal in size and appearance, but the menstrual flow was very scanty and pale, and she suffered with severe *backache* and *bearing down* pains, two or three days before the flow appeared, and during the two or three days of its continuance.

Another patient, twenty-six years of age, has been married three years, is sterile, and suffers with severe *backache* and *headache* before and during menstruation. The flow continues one day and is very scanty and pale. Coitus is painful, and there is an absence of sexual appetite, except just before the period, when it is exaggerated. Her uterus is small and hard, and she has occasional attacks of syncope.

A fifth patient is twenty-five years of age, married, and has been growing very stout for two years. She had a child three years ago, after a long and severe labor, and since then has been sterile. Menstruation recurs regularly, lasts three days, and the blood is ejected in clots. Severe pain in the back accompanies the discharge. Both the cervix and body of the uterus are atrophied.

A sixth patient is twenty-six years of age, has been married three years, has been pregnant but once, and did not carry the fœtus to term. When first seen she had not menstruated for three months.

In an interesting work on obesity, by Worthington,[1] the testimony of various writers as to the bearing of this condition upon menstruation and reproduction is summarized. Among this author's cases was one of a woman who became obese at the age of thirty-four, one year after the birth of her first and only child. In addition to sterility she suffered from irregular and scanty menstruation.

Glais[1] has recorded twelve cases in which obesity was mistaken by the patients for pregnancy. Amenorrhœa was present in almost all of them. Depaul[2] has stated that he has frequently been consulted by women who have rapidly become obese, especially upon the abdomen and breasts, under the supposition that they were pregnant. Amenorrhœa has been an accompanying symptom. Kisch[3] observed 208 cases in which obesity was associated with amenorrhœa or oligomenorrhœa, either as cause or effect. In many of the cases obesity was the only cause which could be suggested for the coexisting sterility. This testimony as to the correlation of obesity with disorders of the menstrual and reproductive functions warrants, in my judgment, the following statements with reference to symptoms: Sterility will be the rule, whether the patients have previously borne children or not. Should pregnancy occur, the impaired nutrition of the uterus will operate unfavorably upon its continuance to term. Should gestation be completed, it is not improbable that the offspring will be deficient in vitality, as has been demonstrated by Bunsen.[4] Menstruation usually occurs at regular intervals; several months may elapse between consecutive periods.

The quantity of blood which is lost during menstruation is almost always less than normal, and it lacks the character of normal menstrual blood. It is often only blood serum, containing a few epithelial cells. It may be expelled from the uterus in the form of poorly organized clots. The duration of the period may be a few hours, or a single day; I can find no record of its exceeding three days. It may continue a short time, cease, and after a few hours, or even a day or two, begin again, and continue another brief period. Pain is an almost constant symptom, beginning a few hours, or even several days before the flow appears, and continuing until the latter ceases. It is in the sacral region, in almost all cases. There is usually a sense of pain and fulness in the head. In particular cases there are *bearing-down*, or expulsive pains.

Vicarious menstruation has been observed in the form of nosebleed and bloody diarrhœa.

The sexual appetite is abolished in many cases, but in some it is quite pronounced during the few days preceding menstruation. Coitus is not infre-

[1] Paris thesis, 1875.

[1] Paris thesis, 1875: quoted by Worthington, op. cit.

[2] Worthington: op. cit.

[3] Die Fettleibigkeit der Frauen in ihren Zusammenhänge mit den Krankheiten der Sexualorganen, Prague, 1873: quoted by Worthington, op. cit.

[4] Neue Ztsch. f. Geburtsh., vii, 1, 1841: quoted by Worthington, op. cit.

quently painful. In one case, which was seen in consultation, there was acute hyperæsthesia of the entire genital tract, the patient having been under treatment for nymphomania. Such a condition of affairs is probably exceptional. The general condition is that which is common to those who suffer from adiposis, namely, impairment of the physical and mental powers, with disinclination to the performance of the ordinary duties of life. Constipation is almost always a troublesome symptom.

The causes which lead to obesity with its accompanying symptoms are usually discoverable, even if not always remediable. In most cases there is nothing peculiar about the process, the causes being such as would conduce to obesity in the opposite sex.[1] Among these may be mentioned an hereditary predisposition to obesity, derived from one or both parents, luxurious habits, sluggish disposition, an inactive life, excessive sexual indulgence, and the free or immoderate use of starches, fats, and sugar. An inordinate fondness for confectionery may be expected, as the rule. In those who assume obesity as a consequence of what may be called excessive childbearing, the causes may be considered identical with those which obtain when the climacteric occurs at the customary period, namely maturity of the physical powers, in so far as they appertain to the reproductive function, and diversion of the nervous energy from the sexual apparatus. My experience in this respect harmonizes with the views of Sir James Simpson and Frommell.

The prognosis in many of these cases may be considered exceedingly good, excluding, of course, those in which the climacteric has followed extraordinary fruitfulness. For the latter the condition of sterility is permanent, and I doubt whether any system of treatment could change it. It is the order of nature. For the others a properly regulated diet is of primary importance, hydrocarbons being eschewed in favor of albuminoids. Alcohol in any form is contraindicated. Suitable exercise must be insisted upon, either by the performance of the active duties of household life or a suitably arranged course of gymnastics, including *massage*. Worthington recommends[2] the systematic use of the waters of Vichy, Marienbad, Carlsbad, or Ems. I am profoundly impressed with the value of electricity for this condition both in the form of general faradization and the intrauterine use of the faradic current. Not only will the muscular tone of the uterus be improved by this means but the entire pelvic circulation will be favorably affected. I have seen some cases which seemed to be benefited by the use of astringents and stimulants to the interior of the uterus, also by moderate dilatation, but the same means have also been successful in exciting violent inflammation, which leads me to be cautious in recommending them.

The systematic use of laxatives will be required in almost every case, and we should look well to the condition of the heart, using suitable tonics as they are indicated. The internal use of iodine and its compounds has not been attended with the success which its early advocates would lead one to expect. Worthington approves highly of hydrotherapy, especially sea-bathing. Warm baths are, of course, to be avoided. As Worthington has suggested, it is not improbable that one who succeeds in relieving a patient of her obesity will, at the same time, cure her sterility, even without intrauterine medication, and this opinion is shared by Roubaud.[1]

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[1] Manifestly an exception is made in those cases in which obesity follows frequent parturition and lactation.

[2] Op. cit.

THE OCCURRENCE OF COMA IN SUDDEN SPONTANEOUS BRAIN LESIONS.

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THIS symptom is one of the most striking and more frequent of those attending intracranial accidents. The absence of coma in some cases even of large cerebral hemorrhage, its occurrence in many cases of limited lesion, and often, but inconstantly, in cases of cerebral embolism are trite facts. No acceptable theory has been proposed to explain or harmonize these apparent discrepancies, and consequently the symptom has not acquired any definite clinical value. It is certainly permissible to attack such a problem in any way that presents, and whilst a complete explanation is not possible, yet it is believed that the symptom can be made clinically available for some classes of cases. Any study of the different forms and degrees of coma will not be attempted. For a brief definition of the term we may cite Gowers. "The prominent feature of apoplexy is loss of consciousness without obvious failure of the heart's action." In some cases consciousness is simply lost or clouded for a few moments; this can hardly be called coma. Often, unfortunately, our knowledge of the loss or retention of consciousness rests on very unreliable statements. Even careful observers may differ in what they call coma. It should be remembered that the symptom is a general ("diffuse") one, and may be produced by lesions on either side of the brain. "An apoplectic attack, coma, and also delirium, may occur without anything abnormal being found in the brain (or other part of the body) at the autopsy." Lesions of the cord, below the pyramids of the medulla, do

[1] Traité de l'impuisiance et de la stérilité chez l'homme et chez la femme, Paris, 1872.

not cause coma, though, if in the cervical portion, sudden death may result.

Suddenness of the lesion and increased intracranial pressure are acknowledged factors. Personal observation, and a study of the subject indicate that the seat of lesion is also an important factor. Evidently this view has never met with favor, though general opinions, for and against it, might be quoted. To determine its truth will be one of our objects, especially in view of the opposite opinion so positively adopted by such a recent writer as Wernicke. He assumes that a slower arterial supply, and freer venous discharge explain the slighter mental disturbance in hemorrhage into the mantel-zone. This factor of suddenness is, on the other hand, most prominent in embolism; hence, coma should follow embolism affecting this region, if his attempted explanation were correct.

There are three classes of cases that might come up for consideration, viz., hemorrhage, embolism, and thrombosis. Thrombosis and spontaneous softening may occasion loss of consciousness, but are of little value in this discussion. The rapidity with which the former develops, is variable and uncertain. Moreover, it often results from causes that affect the circulation in other parts of the brain, *e. g.*, atheroma, syphilis, neoplasms, and general exhaustive diseases. In many cases of (so-called idiopathic) softening, the rest of the brain is not entirely healthy; the softening represents what has become irreparable.

It is better to begin with the study of embolisms; because,

1. In them, one factor, that of increased pressure, is absent.

2. Their onset is more typically sudden.

3. The portions of the brain most frequently affected by them interest us first.

Embolism.

The effect of embolism on consciousness is considered less subject to rule than that of hemorrhage. The study of these accidents proves to us, however, that increased brain-pressure is not an essential or the only factor in the causation of coma.

There are a variety of matters which render it difficult to determine the effect on consciousness of an embolic insult to a given part of the brain.

a. The large amount of brain-tissue directly menaced in most cases. Even where softening follows, it does not often include the whole district at first deprived totally or partially of arterial blood.

b. It is questionable whether in all cases the artery is at once completely occluded. Wernicke thinks it admissible to assume this for most cases. However, this is not always true, and, when not, the shock or suddenness of the attack would be mitigated.

c. Many emboli soften and break up, thus either entirely disappearing, or only remaining in part in the shape of smaller emboli in terminal branches of the originally occluded vessel. When this happens early enough, softening is prevented, and we may have no permanent symptoms (no matter how severe the onset), and little or nothing to demonstrate, should the subject come to autopsy. Or, again, softening may have set in before the embolus was dislodged, when there would be nothing to show as the cause.

d. Another possible element of uncertainty lies in the usual co-lesion of the meninges, or at least some extent of the pia mater. The effect on consciousness of injury to this structure is doubtless slight.

e. In a goodly proportion of cases, embolism occurs in persons whose brain-circulation has been greatly weakened by preëxisting intrathoracic disease. In such, evidently, a much smaller shock might cause loss of consciousness. In reality it then appears very similar to syncope. The subject falls, if upright, but on being thus obliged to lie down, the circulation in a few minutes reëstablishes its equilibrium sufficiently to support consciousness, and the person revives. Such transitory loss of consciousness can hardly be called genuine coma.

A few opinions regarding the present subject may here be introduced, though rather to show the chaos of views that exists than for their real value.

Wilks (*Lectures*, p. 120) says:

"It might be thought that unconsciousness would be less likely to occur in embolism than in sanguineous effusion; but this is not always the case, for although it is true that there is often complete coma in large effusions from rupture of small vessels, as in ingravescent apoplexy, the unconsciousness and mental confusion are often less than in embolism."

Flint (reported in *Boston Medical and Surgical Journal*, 1879, vol. c. p. 668) says:

"From the long continuance of coma, we are justified in considering that the symptoms are probably not due to embolism, but rather to cerebral hemorrhage."

Wernicke (Bd. ii. 136) writes that

"Clinical experience shows unmistakably that isolated embolism of small vessels, up to the calibre of the largest perforating arteries, or the branches to Broca's convolution, does not usually suffice to produce unconsciousness and the fully developed apoplectic insult."

Sachs (*Journal of Nervous and Mental Diseases*, Aug. 1887, p. 507) states that

"It is well known that embolism is far more frequently accompanied by loss of consciousness than hemorrhage. The plugging of even a small cerebral artery is almost invariably followed by loss of consciousness."

Nothnagel (*Top. Diagnk.*, 1879, p. 612) holds that

"Observation teaches that in any localization whatever a hemorrhage may set in with loss of conscious-

ness, that, however, it may be absent in any [region], even in the cortex. There is no locality from lesion of which 'the apoplectic insult' must regularly be present or absent."

He adds that large hemorrhages and embolisms with extensive ischæmic districts produce a severe attack, though the converse is far from being as generally true.

Limits in the Selection of Cases.

It is necessary at the start to simplify the investigation as much as possible. In fact any successful study of the subject must largely depend upon the proper exclusion of irrelevant and misleading cases—a principle urged in another connection by Nothnagel in his "Topical Diagnosis."

1. All cases without autopsies are to be excluded.
2. All cases brought on by external shock.
3. All cases attended by convulsions.

Trousseau, *e. g.*, says that convulsions suffice to produce apoplectic stupor, and we have but to note the usual effect of an epileptic attack.

4. Many cases are poorly suited to our purpose, where the person has had a previous apoplectic or apoplectiform attack, is subject to epilepsy, is suffering from other nervous or severe bodily disease, or where there are bilateral or multiple brain lesions.

5. All cases where important particulars are wanting, *e. g.*, where the embolism occurred during sleep.

6. All where the subject was under twenty-one years of age. Children are known to be more subject to convulsions and coma than adults. Many persons certainly attain their development before twenty-one, but to exclude the element of infancy or youth this age has been universally adopted for other purposes and may well be for ours. Perhaps old age ought also be a ground for exclusion, but as senility does not come on with much regularity, such limitation will not be attempted.

7. In making what may be regarded as a primary study of the subject it is better to include only cases where the injury was limited to particular parts or structures. This is necessary before studying the results of co-lesion—even though partial—of two or more structures. As embolism but rarely affects any one of the basal ganglia singly we shall now take up only those cases where the embolic softening was wholly in the extraganglionic portion of the cerebrum (Mantelzone of the Germans).

Embolism of Sylvian (Middle Cerebral) Artery or its Branches.

From the seat of an embolism in this artery no sure conclusion can be drawn as to the exact portion of brain that will consequently soften. That an embolus in its more peripheral portions would rather cause a cortical and sub-cortical softening, and one in its beginning more often softening about the striated body, internal capsule, etc., is probable but in reality uncertain. This fact seems to have been ignored by most who have touched on the subject.

Hughlings Jackson says that in embolism of this artery "there may be no loss of consciousness and the hemiplegia may be transitory, though patients sometimes die in a few days in an apoplectic manner."

S. Mackenzie (*Brain*, 1878, iii.) writes that "most authorities agree that loss of consciousness is unusual in embolism of a Sylvian artery, though Niemeyer is a marked exception. Loss of consciousness may occur and be as complete as in severe hemorrhage, but this is unusual."

Nothnagel, holds that "while embolism of the Sylvian artery is, as a rule, attended with symptoms of apoplexy, yet it may occur without them," and Wernicke (ii. 136), that "embolism of the Sylvian artery before its bifurcation, or of one of its two chief branches, regularly causes a developed insult." He thinks that where this does not occur, we are to look for exceptional conditions (partial occlusion, etc.).

The accompanying table gives a nominal total of 32 cases (or 36 presumable embolisms), and includes all so far collected that come within the limitations laid down. No. 15 is insignificant. No. 32 occurred at night, in a patient with high fever. From complications and imperfect descriptions of the onset, several of the other cases are not entirely desirable; Nos. 15 and 32 may, therefore, be excluded, though they present nothing against conclusions drawn from those remaining.

This leaves 30 cases (not counting double ones) involving, one with another, a large part of the brain-mantle—a number sufficient to justify conclusions. Only in Nos. 7, 9, 18, and 26 was there any question of coma at the onset. The other 26 (resp. 30, separate embolisms) occurred without this symptom. In No. 7 a really comatose state did not develop—delirium from *second* attack. In No. 9, also, at *second* attack there was but momentary loss of consciousness—again not genuine coma. In No. 18 the short loss of consciousness (for ten minutes) is easily accounted for. The patient was in a fever, and one thoracic cavity was quite two-thirds filled by a recent effusion. The heart was slightly displaced, and the pulse weak. Moreover, the softening was beside the striated body—not superficial—and at first that structure may well have been implicated. This leaves but one, No. 26, amongst all the cases, that is exceptional, and even that is not necessarily so. It was presumably, though not certainly, due to embolism. There was bilateral cutaneous anæsthesia—absolute on the right, and nearly so on the left—of five days' duration. Five months later there was, for one day, a return of the various symptoms (at least aphasia, etc., and anæsthesia, though of a

TABLE OF CASES.

No.	Observer.	Publication.	Sex.	Age	Embolism.	Softening (extent of).	Remarks.
1	West.	Brit. Med. Journ., 1885, i. p. 1242.	M.	66	Branch of Sylvian.	Left supramarginal and angular gyri.	
2	Bourneville et Bonnaire.	Prog. Méd., 1882, p. 239.	M.	54	Believed to have been embolic.	First and part of second temporal convolutions, also larger part of lobule, du pli courbe and insula.	
3	D'Heilly.	Gaz. Hebd., 1882, p. 54.	F.	24	Fourth branch of Sylvian.	Gray cortex implicating inferior parietal lobule and part of first spheno-occipital convolution.	Phthisis.
4	Bancroft.	Boston Med. and Surg. Journ., 1881, p. 483.	M.	60	Branch of Sylvian.	Anterior portion of middle lobe 3–4 inches in diameter, also insula superficially.	One of repeated attacks, probably of embolism.
5	Goltdammer.	Berl. kl. Wochr., 1879, p. 367, Case III.	F.	36	Pia branches of Sylvian.	Whole of posterior central, part of anterior central and of first frontal, and most anterior supramarginal convolutions.	
6	Magnan.	Brain, 1879, Case III.	M.	42	Considered embolic	Involved temporal and third frontal convolutions.	Complications.
7	Guitéras.	Phil. Med. Times, 1878, ix.	M.	58	1. Embolic. 2. Posterior branch of Sylvian.	1. Gray matter for 1 inch at middle and lower third of anterior central convolution. 2. The transition convolutions with posterior half of angular gyrus and of first temporal.	Two attacks, delirious (semicomatose) in second only. Focus also in cerebellum.
8	Poulin.	Bull. Soc. Anat., 1878, p. 577.	M.	...	Branch of Sylvian.	Superficial of anterior and posterior central convolutions.	
9	Seguin.	Trans. Am. Neurol. Assoc., 1877, Casé II.	F.	...	Middle cerebral, half inch from its origin.	Posterior end of third frontal and anterior half of insula. (The previous attacks were represented by softening in opposite third frontal convolution.)	Two previous attacks on other side; only in second was there loss of consciousness for a moment; later epileptic seizures.
10	Prevost and Cotard.	Études, etc., 1886, Obs. 26 (*vide* Wernicke, ii. p. 138).	F.	83	From atheroma.	Plaques on all the right frontal convolutions, on several occipital, and at bottom of central fissure. Basal ganglia intact.	Two attacks, each without coma.
11	Prevost and Cotard.	Obs. 3 (*vide* Wernicke, ii. p. 138).	F.	70	From atheroma.	Part of inferior frontal, of both central, and the two anterior insular convolutions; anterior part of temporal lobe.	First attack.
12	Radcliffe.	London Lancet, 1866, July 28.	M.	27	Sylvian artery at a bifurcation.	One third of middle lobe.	
13	Ogle.	Pathl. Trans., 1867.	M.	45	Branch of Sylvian, at a bifurcation.	Posterior part (¾×¾ inch) of third frontal convolution, also smaller spot beneath end of Sylvian fissure.	
14	Moxon's service at Guys.	London Lancet, 1868.	F.	58	Sylvian at its first branching.	Corresponding gray and some of white substance, œdematous, etc.	
15	Berkley.	MED. NEWS, 1882, ii. p. 61.	M.	73	Minute artery.	Nodule half thickness of cortex in anterior central convolution.	
16	Begbie.	Edinburg Medical Journal, 1866, p. 122.	F.	22	Sylvian beyond a second considerable branch.	White substance external to posterior half of striated body.	Complications.
17	Fritsch.	*Vide* Starr from Wilband's Hemianopsie.	...	...	Parieto-sphenoidal branch of Sylvian.	Entire lower parietal lobule and part of cortex of second occipital convolution.	
18	Vallin.	Gaz. Hebd., 1870, No. 5, p. 77.	M.	21	Two branches of Sylvian.	Near corpus striatum and at posterior extremity of this patch was a cavity filled with débris.	At first unconscious, but recovered in ten minutes (*vide* infra).
19	Greenlees.	Amer. Journ. Ins., April, 1887, Case IV.	M.	32	Greenlees says evidently from embolism of Sylvian.	Lower frontal, both central and anterior part of first two temporal convolutions; whole of insula to striated body.	In an imbecile.
20	Estorc.	Mont. Med., 1882, (*vide* Charcot and Pitres, Rev. de Méd., 1883, Ob. 55.	F.	32	Evidently from embolism.	Cyst in white substance of central region.	Prolonged onset.
21	R. Atkins.	Brit. Med. Journ., 1878, May 11, Case vi.	F.	68	Middle division of Sylvian was obliterated (anterior parietal of Duret).	Lower part of posterior central, extending into centrum ovale. Opto-striated bodies free.	Without doubt embolic, he says.
22	Rosenthal.	Wien. Med. Halle, Mai 18, 1862, iii. (*vide* Schmidt's Jrbch., Bd. 117, Case 6.)	F.	27	Sylvian artery.	Nut-sized focus in white substance.	

TABLE OF CASES.—*Continued.*

No.	Observer.	Publication.	Sex.	Age.	Embolism.	Softening (extent of).	Remarks.
23	Tassi,	Rev. sper. di freniat. Journ., 1880, p. 193 (*vide* Charcot and Pitres, Rev. de Méd., Oct., 1883, p. 864-5).	M.	37	Sylvian at its ramification.	Posterior upper part of frontal lobe.	Onset somewhat gradual; epileptiform attacks some days later.
24[1]	R McDonnell,	Brit. Med. Journ., 1877, ii. p. 49.	M.	64	Branch of Sylvian to Broca's convolution was completely blocked.	Left third frontal convolution.	Onset not directly stated.
25[1]	Beaumanoir,	Arch. Gén. de Méd. Navale, 1879 (*vide* Charcot et Pitres, Rev. de Med., 1883, Obs. 56.)	M.	36	Plug in Sylvian, extending into three superficial branches.	Superficial; central masses intact.	Phthisis.
26[1]	Nothnagel,	Topische Diagnostik, 1879, p. 427.	M.	28	Only mentions embolisms in other parts of body.	Cortical alteration involving somewhat the anterior central, second and third frontal, and third, fourth, and fifth insular convolutions. Cortex adherent to pia, forming a hard plate.	Loss of consciousness for an hour (*vide* infra).
27[1]	Webber and Wyman,	Boston Med. and Surg. Journ. 1880, vol. ciii. p. 109.	F.	59	"Apparently from plugging of a vessel" (atheroma).	Left insula much softened.	Other and older cerebral lesions.
28	Seguin,	Journ. Nerv. and Ment. Dis., Jan. 1886, Case 45.	M.	46	Occipital artery (3d branch of posterior cerebral).	Cuneus, extending into temporal gyri and hippocampus.	
29	Wilbrand,	Deut. med. Wchr., 1885.	M.	60	Described as an embolism.	White substance of occipital lobe shrunken, etc.	Thalamic and other foci from a later attack.
30	Haab,	Klin. Montbl. f. Augld., 1882 (*vide* Jour. Nerv. and Ment. Dis., 1886, pp. 18 and 22).	M.	68	Evidently embolic.	Cyst of softening in occipital lobe.	Onset not directly described.
31	Curschmann,	Centrlbl. f. Angkld. *vide* Frere, 1882, Obs. 60); also Rep. 7th German Cong. in Wien. Med. Wochr., 1887, p. 682.	M.	50	"of corresponding artery."	Cuneus.	
32[2]	Charcot,	Leçons, etc., Paris, 1872-3. pp. 72 and 74	M.	22	Posterior cerebral artery.	Nearly the whole occipital lobe.	Typhoid fever; whether the embolism caused or only accompanied delirium is not clear.

[1] The cases were not published as embolic. [2] Cases 28 to 32 inclusive, represent embolism of an occipital artery or branch.

different form). It was simply stated by friends that he had rolled his eyes, groaned, and lost consciousness for perhaps an hour. The peculiarities of this case may have been due to multiple emboli or an epileptiform complication.

There is also the possible explanation for any unusual case, that at first the embolus cut off vessels to the central ganglia. Hence, in 30 (resp. 32) cases, or in 32 (resp. 36) embolisms affecting only the brain-mantle, there is at most but one exception—and this doubtful—to the rule that embolism of this region in the adult does not cause coma. This is a result quite as uniform as other accepted facts in cerebral symptomatology. If, as proposed, all cases not described as embolic, and all not free from important complications, had been excluded, the uniformity would have been complete. But, for reasons already given, exceptions, apparent or real, will occur; it seemed, therefore, better to include the most probable so far found.

These cases do not, it is true, include all parts of the brain-mantle; yet they do cover about all that is often affected by embolism, or of which we have much knowledge, clinical or physiological. They extend over the whole period of adult life, from twenty-one to eighty-three years of age, and include both sexes (males, 20; females, 11; not stated, 1). The list presented makes no pretension to completeness, though cases satisfying the requirements are not plentiful. Bilateral embolism seems commonly, though not always, to cause coma. At least in Stewart's case (*Med. Times*, 1864, *v. Journ. Ment. Sci.*, 1868, p. 66), plugging of both Sylvian arteries, with resulting walnut-sized softening on each side, in

a man of twenty-one years, occurred without coma. Though this was presumably thrombotic, yet it indicates that the same might occur in embolism.

In any individual case, embolism limited to this region does not involve a *relatively* very large part of its whole, nor does it cut off tracts to other parts of the cortex (except, of course, association fibres). Hence it does not deprive of their function parts of the cortex not directly injured, and we have essentially symptoms confined to the part lost (ausfall-symptome of the Germans). If the area destroyed were sufficiently large—how large cannot be stated—there is no question but that coma would result; nor is there any doubt that lesions in this region have some tendency to cause coma. Only, in practice, embolism alone does not suffice.

Taking the cases as they stand, multiple attacks and all, delirium or some obscuration up to temporary loss of consciousness is noted in 5 out of 36 attacks. Lesser disturbances are very common. The present cases do not show whether lesion of different equal areas of cortex has or has not a like effect on consciousness, though destruction of sensory centres seems to be better tolerated.

Conclusions.

1. In adults free from relevant complications, embolism involving directly only extra-ganglionic portions of the cerebrum, does not cause coma.

2. Conversely, where the diagnosis of cerebral embolism is warranted, primary coma indicates implication of the basal ganglia or brain-stem.

3. The absence of coma does *not* preclude involvement of the said lower structures.

4. From the fact that more limited embolic injury involving other portions of the brain is frequently attended by coma, it follows that the location (or seat) of a cerebral lesion is one of the important factors in the causation of this symptom.

5. Wernicke's view, that the slighter disturbance of consciousness by hemorrhage into this region—as compared with hemorrhage into other portions of the brain—is owing to circulatory peculiarities, and hence to the absence of the factor of suddenness, is disproven.

6. Of course, thrombosis also, *under like conditions*, would not cause coma.

7. Whether embolism of the Sylvian trunk will or will not cause coma, is a useless question. It depends on the structures supplied by that artery in any given case.

8. It must not be considered that the above conclusions at all disprove the accepted view that the cerebral cortex is the seat of higher consciousness.

From the basis thus gained it will be possible to take up more intelligently the subject of hemorrhage into the same, and even other regions of the brain.

A CASE OF PENETRATING GUNSHOT WOUND OF ABDOMEN; NO VISCERA INJURED; RECOVERY.

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B. C., white, æt. thirty-two, puddler by occupation. On December 2, 1887, about 12 o'clock noon, received a pistolshot wound of the abdomen from a 38-calibre Smith & Wesson revolver, at a range of ten or fifteen feet. Dr. Douglass, of this city, was called and found the wounded man where he fell. He administered a hypodermatic of morphia, and had the patient removed to his home two miles distant.

I saw the patient two hours later with Dr. Douglass. He was then comparatively comfortable, having suffered no noticeable shock. On examining the belly we found the bullet wound about three and a half inches to the right of, and on a level with the umbilicus. The direction of the wound was toward the median line and slightly downward. The thickness of the abdominal wall and the different conditions of contraction of the powerful muscles from that in which they were when the wound was received, rendered it impossible to say to a certainty that the ball had entered the cavity. The doctor ordered a two grain opium suppository, and we left him to get ready for an operation.

At 6 P.M. the pulse beat was 95, temperature 100°. At 9 P.M. pulse 110, temperature 101⅖°. At 12 M. pulse 130, temperature 103°, and all symptoms of an acute general peritonitis had set up. After consultation with Drs. Morris, B. T. Jones, Hargrove, and Douglass, and through the courtesy of the latter gentleman, I operated with the assistance of all. The wound was slightly enlarged, and under ether the track could be followed to its entrance into the cavity. An incision was then made in the median line from the umbilicus to the pubes, after shaving and cleansing the parts. All bleeding of any consequence was stopped before entering the cavity. The bowel was removed and carefully examined for wounds, being handled on towels wrung out of hot bichloride solution. After a thorough search of half an hour we failed to find any damage done, except the ragged hole through the parietal peritoneum, which was one and a half inches nearer the median line than was the external wound. No further trace of the ball could be found. Although the opening of exit from the cavity must have been there it was unavoidably overlooked. It could not be felt and the lamp we were working by did not give sufficient light to illuminate the cavity.

The visceral and parietal peritoneum was brightly congested, with minute patches of lymph deposited on their surfaces. About six ounces of bloody serum was sponged out of the cul-de-sac, and the cavity was then flooded with mild bichloride (1 : 6000) solution. The bowel returned, the cavity was again flooded and emptied, and then closed. A small rubber drainage-tube was left in the lower angle of the wound. A dressing of iodoform, absorbent cotton, and a roller was adjusted, and the patient put to bed.

The operation occupied from 12.30 until 2 A.M. The temperature was then normal, and remained so with the exception of a rise to 100° on the two evenings following. This was no more than might have been caused by another bullet which broke the patient's right arm.

The bowels were kept quiet with opium for six days, and then relieved with an enema. He vomited twice on the first day, but no stitches were ruptured, as the dressing had been tightly applied.

The dressing was removed on the fifth day, and the wound found to be entirely closed, except at the point of drainage and at two points between stitches where the skin had not been neatly approximated, these were granulating.

The wound was dressed again on the tenth day, when the drain was removed; and again on the fourteenth day when the sutures were removed. He was directed to wear a supporter for some weeks to lessen the danger of ventral hernia.

Aside from feeling it a duty to report cases, concerning which statistics are important, I think this case is of interest on account of its rarity—*i. e.*, a large size bullet passing through the peritoneal cavity and damaging nothing but its walls.

Dr. Morris's idea of its hugging the anterior wall from its entrance, and passing around and burying itself in the muscles of the left side (the man who did the shooting standing to the right and behind him) seems to me the only explanation; in view of the fact that he had eaten nothing for eight hours, the bowels must have been nearly, if not quite, empty, which condition, no doubt, was favorable to the harmless passage of the ball.

Still further interest attaches from the prompt arrest of the peritonitis through washing out the cavity.

Would the absence of shock indicate that none of the viscera was injured? Or was there absence of shock because the patient was heavily intoxicated when he received the injury?

DEODORIZED IODOFORM.

BY LOUIS GENOIS,
OF PHILADELPHIA.

Undeterred by the numerous methods already recommended for disguising the odor of iodoform, the writer ventures to suggest one more, believing it to possess in a marked degree the essential features aimed at—that is, complete concealment of the odor, and permanency.

The dissatisfaction with the disagreeable and persistent odor of the drug has become so pronounced that many physicians have discarded its use entirely, and have resorted to other bodies of an allied nature, in the hope that some of them would prove as efficient and reliable as iodoform.

The principal substitute employed, and that on which most dependence has been placed, is iodol, or tetraiodide of pyrrol; a compound which, from the large amount of iodine it contains, was thought to be equal, if not superior, to iodoform in antiseptic and alterative properties; from indications, however, which the writer considers conclusive, there is a well defined preference for iodoform among medical men, and if there could be devised some means of overcoming the objectionable odor, there is no doubt that the drug would reassume its incontestable supremacy.

Attempts to deodorize iodoform may be said to have been coeval with its introduction into medical practice, and perhaps it would be easier to enumerate the substances that have not been used for the purpose than those that have been recommended, so numerous and various are the latter. The essential oils, tannin (which decomposes the drug), coumarin, balsam of Peru (which abstracts iodine from its combination), ground coffee, charcoal, the alkaline carbonates, benzoic acid, etc., have each in turn been tried, and found wanting, either in permanency, or in causing a chemical reaction and changing the character of the drug.

Probably the best admixture that has come under the writer's notice is one of menthol and oil of lavender, a formula for which was published in a French journal, and was pointed out to him by Dr. S. W. Gross; but, as in other cases, in a week's time the added substances begin to volatilize, and the iodoform odor reappears, increasing in intensity until it is itself again.

The deodorant of which the writer advocates the use is purified naphthaline, to which a trace of turmeric has been added; this mixture will mask the characteristic odor so effectually as to challenge detection by the sense of smell alone.

The quantity of deodorant required to diguise the odor of a given quantity of iodoform is comparatively small; after a number of experiments, it was found that nine per cent. of the mixed substances was ample for the purpose. The following formulæ are suggested:

Deodorized Iodoform.

Purified naphthaline	7½ grs.
Powdered turmeric	1½ grs.
Iodoform	91 grs.

Rub together until thoroughly mixed.

Ointment Iodoform.

Deodorized iodoform (as above)	℥ij.
Oil of almond	℥ss.
Lanoline	℥vss. M.

Lanoline is suggested because possessing a strong odor of its own which assists in concealing the iodoform odor, and besides it is readily absorbed by the skin.

The deodorized powder can be used instead of the

simple drug in the making of suppositories, crayons, plasters, etc., and other preparations for external application. For making an ethereal solution the turmeric should be left out, as it is not soluble in ether.

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MEDICAL PROGRESS.

Creolin in Cystitis.—The *Lancet* of January 14, 1888, reports that in a very persistent case of cystitis occurring in a middle-aged woman, where the pain was so constant that the patient was generally obliged to keep her bed, and where the urine was offensive, brownish, and thick, depositing a third of its volume of pus, blood, and phosphates, after a large number of different kinds of treatment had been employed by various medical men without much result, the best application appearing to be injections of corrosive sublimate in very weak solutions, Dr. Jefsner, of Stolp, washed out the bladder with a half per cent. solution of creolin. This caused a burning sensation for a few minutes, after which it passed off. The next day the patient felt and looked quite a different woman, the pain in the bladder had been less than for a long period previously, and the urine, when drawn with the catheter, was scarcely offensive at all, and appeared quite clear, depositing after a time only a small quantity of phosphates without any admixture of pus or blood-corpuscles. The washing out of the bladder was repeated daily, and by this means the improvement was maintained. It would appear, therefore, that in creolin we a deodorizer and a hæmostatic, as well as a means of improving the character of the secretion from the surface of mucous membranes.

The Dangers and Uselessness of Very Strong Galvanic Currents.—At a recent meeting of the Paris Academy of Medicine, DANION stated that from his study of the effects of powerful galvanic currents, in experiments upon animals, he finds that they frequently produce severe congestions followed by inflammation of internal organs.

The electrolytic effects of moderate currents in gynecological practice illustrate the advantages of these currents. On the contrary, the use of very strong currents is equally harmful.

Very strong currents are absolutely useless.

Voltaic, non-caustic currents of great strength are apparently harmless, but further study is needed to confirm this opinion.—*L'Union Médicale*, January 19, 1888.

Methylal as a Local Anœsthetic.—LANGGAARD, in the *Therapeutische Monatshefte* for January, 1888, reports the following formulæ:

Methylal.	15 parts.
Ol. amygdal. dulc.	85 "

Also,

Methylal.	ʒ 2½.
Spiritus	ʒ 27½.
Ol. lavandulæ	gtt. 75.

to be used as liniments.

Methylal.	♏ 75.
Adipis	ʒ 7½.
Ceræ	gr. 45.

to form an ointment.

For application, upon cotton, to a hollow tooth.

Tinct. fol. coca.	ʒ 2.
Methylal.	♏ 30.

may be used.

The Relations of the Peritoneum to the Abdominal Wall, in Cystotomy.—STRONG, of Chicago, in the *Annals of Surgery* for January, 1888, reports the results of a number of experiments upon cadavers, as follows:

1. In the normal condition, the bladder and rectum being empty, the apex of the bladder and peritoneal reflection are a little above the arch of the pubes.

2. In moderate distention of the bladder the anterior peritoneal reflection is below the apex; with the same degree of distention and the bladder pressed against the abdominal wall, the peritoneum ascends higher.

3. Suprapubic cystotomy can be most easily and safely performed when the bladder is lifted from the pelvic floor and moderately distended against the abdominal wall.

4. Distention of the rectum alone elevates the base of the empty bladder, but does not raise materially the vesico-abdominal fold of peritoneum.

5. Distention of the bladder alone, in thin subjects particularly, requires relatively a greater amount of fluid to elevate the peritoneal reflection. The bladder is not crowded against the abdominal wall, but rather falls away from it.

6. Moderate distention of both rectum and bladder meets the indication the best; from ten to twelve ounces in the rectal bag and eight to ten in the bladder are generally enough, and seem to be a safe quantity to use.

7. Dilatation of the rectum first and the bladder afterward lifts the peritoneal reflection the highest.

8. The object of the rectal bag is to elevate the distended bladder and press it against the abdominal wall and so crowd up the peritoneum.

9. To meet the indication the gut should be dilated from the anus to near the promontory of the sacrum.

10. The rectal bag should be sausage-shaped, of rather thin rubber, rather than pyriform and thick, for the thinness enables it to follow up the gut, and the shape makes uniform pressure throughout the entire length.

11. In a very fleshy subject, with a flabby or pendulous belly, the bladder is relatively freely movable. In such a case it will easily rise out of the pelvis against the abdominal wall, when alone distended with a moderate quantity of water; the rectal bag may then be safely dispensed with.

12. Air, injected into the bladder of a subject, lifts the bladder and its peritoneal reflection out of the pelvis better than water.

13. In one case the gut was ruptured opposite the promontory of the sacrum with twenty-three ounces in the rectal bag, in no case was the bladder ruptured.

14. In the cases reported an average of fourteen ounces in the rectal bag and twelve in the bladder elevated the anterior peritoneal reflection an average of one and a half inches above the crest of the pubes; the apex of the bladder was one inch higher.

For Cancer of the Uterus.—The *Medical Press and Circular* gives the following formula for a suppository for use in uterine cancer:

Iodoform	10 grains.
Camphor	4 "
Extract of belladonna	1 grain.
Cacao butter	q. s.

For one suppository, to be placed in the vagina each night.

Cocaine in Operations upon the Eye.—In the *Archives of Ophthalmology* for December, 1887, Dr. Millikin writes as follows, regarding the use of cocaine:

A few words with reference to the use of cocaine in this connection may not be out of place. With a free use of a four per cent. solution the pain in this operation was not great, but still it was very perceptible. The great advantage from cocaine seems to be the obtunding of the superficial sensibilities of the cornea and conjunctiva; and this is the most important consideration, for operations on the deeper structures of the eyes are not, as a rule, particularly painful. A strabismus operation, even in a child, is borne without great complaint, while touching the cornea or seizing the conjunctiva, without the cocaine, with fixation forceps, is exquisitely painful. Recently I did an enucleation, in the case of a man with marked lung disease, with three or four instillations of a four per cent. solution of cocaine, and the pain complained of was only moderate, yet I have no idea that the cocaine affected in one way or the other the sensibility of the deeper structures cut through. Undoubtedly deep injections of the solution would further obtund the sensibilities, but I have not found this necessary, as I am able to do such operations as strabotomy, advancing the recti muscles, etc., without producing pronounced pain.

Rapid Reduction of Dislocation of the Shoulder.—Abril is quoted by the *London Medical Record* of December 15, 1887, as having employed the following method, with success:

In all the methods ordinarily employed for the reduction of dislocations downward of the humerus, the trunk is fixed and the head of the humerus is raised into the glenoid cavity. Dr. Abril inverts this proceeding; his plan is to fix the humerus and to make the glenoid cavity descend on to the head of the humerus. He claims for his method that it is most simple, easily, and quickly done, that chloroform is not necessary to obtain muscular relaxation, that the pain is trifling, and that no assistants are required. He makes the patient stand with a crutch in his axilla; he then holds the hand of the affected side, making slight traction downward; the patient is now to let himself down as if he were going to fall on his knees, and as he falls the head of the humerus glides into its normal position, and the patient is surprised at finding himself cured.

Strychnia as a Hypnotic.—T. Lauder Brunton, in the *Practitioner* for January, 1888, writes that in treating some cases of persons engaged in literary work who were suffering from sleeplessness and yet were obliged to have their brains perfectly clear during the day, it occurred to him that if he could convert the condition of over-tiredness into a condition of simple tiredness, the patient would naturally fall sound asleep without the use of any hypnotic. One can sometimes do this to a certain extent by giving some warm beef-tea or a teaspoonful of Valentine's meat juice in water either hot or cold, or by giving a little alcoholic stimulant, such as whiskey and water or brandy and water. It is probable that these substances have a double action, tending to dilate the vessels of the stomach and withdrawing blood from the head, as well as tending to exert what we may vaguely term a stimulant action on the nervous tissues themselves, without understanding what the exact nature of this stimulant action is. It occurred to him that as strychnine is one of the most powerful stimulants, if not the most powerful nervous stimulant that we possess, a small dose of it might have the effect of bringing the depressed nervous system up from the condition of over-fatigue to that of simple fatigue, and thus induce sleep. He accordingly tried it, and was much pleased with the result. It acted exactly in the manner that he expected, and induced comfortable healthy sleep without any disagreeable effects next day. The way in which he has used it has generally been either in the form of the tincture of nux vomica in doses of 5 to 10 minims or in the form of Schieffelin's granules, containing $\frac{1}{200}$ of a grain of sulphate of strychnine in each. One, two, or more of these granules were given at bedtime, and the dose was repeated if the patient happened to awake within one or two hours afterward.

The Odor of Iodoform.—Charteris, Professor of Therapeutics at Glasgow, reports the results of his studies in disguising the odor of iodoform as follows, in the *British Medical Journal* of January 21, 1888:

From a series of comparative trials I beg to offer the following prescription as securing the end in view:

R.—Iodoform	grs. 60.
Ol. amygdalæ	℥ijss.
Ol. theobrom.	℥ijss.
Ol. myristicæ	♏ xx.
Moschi	gr. iij.
Coumarin.	gr. vj.
Sp. tenuior	℥j.

The essential ingredient here is musk. To some people, however, the smell of musk is also disagreeable, and the other substances are added with the view of leaving a pleasant odor, neither of musk nor iodoform. If the iodoform is desired for dusting purposes, as in soft chancres or burns, the combinationof one grain of musk to ten or fifteen grains of iodoform is satisfactory. These prescriptions have been made up by leading pharmacists here, and they bear willing testimony to the facts mentioned.

Poisoning by Hyoscyamin.—Dr. Johnson, of Toronto, after reporting the case of a patient in whom one-twelfth grain of hyoscyamin produced serious effects, concludes:

1. That poisoning by hyoscyamin resembles, and may be easily mistaken for, poisoning by atropine.

2. That hyoscyamin is identical with "light atropine," "light daturine," and "duboisine."

3. That there are various preparations known as "hyoscyamin."

4. That these preparations differ exceedingly in their strength.

5. That there is a pure alkaloid hyoscyamin which should not be given, at first, in more than $\frac{1}{100}$ of a grain doses, and

6. That there is a resinoid hyoscyamin, commonly dispensed as "hyoscyamin," which may be given in doses of one-quarter to one grain.

7. That it is advisable for the safety of our patients, when prescribing hyoscyamin, to name the manufacturer whose drug we wish used. — *Canadian Practitioner*, January, 1888.

Quebracho in Dyspnœa.—Dr. Ellis reports, in the *Therapeutic Gazette* of January 16, 1888, that he has found the following formula useful:

R.—Syr. prun. virg.,
Syr. tolutani,
Ext. quebrach. fld. . . āā ℥j.
Acid. hydrocyanic. dil. . . gtt. xxiv.
Morphiæ sulph. . . . . gr. jss.—M.
Ft. sol.

Sig.—Take a dessertspoonful as often as necessary to afford relief.

After the first two doses, each containing two-thirds of a drachm of the quebracho, the difficulty of breathing was very considerably reduced, the respirations sinking from 46 to 24 per minute in three hours, and by continuing it according to direction the patient was enabled to enjoy a longer period of comparative ease than she had experienced for months.

Stimulants and Narcotics in Skin Diseases.—In the *Dietetic Gazette* for January, 1888, Fox, of New York, writes as follows:

One very important point to be considered in preparing a diet list for patients with skin disease is the effect of alcohol, tea, coffee, and tobacco in retarding tissue-metamorphosis. To improve the nutrition of the skin, it is desirable that the processes of waste and repair be carried on without cessation. When alcohol or other stimulants are consumed to any extent this desirable change or reconstruction of tissue is arrested, and the various organs of the body are impaired in the performance of their functions. The effect of beer upon an eczema is as marked as it is upon a gonorrhœa, and I have sometimes thought it better for a patient to drink a whole bottle of whiskey than a single glass of malt liquor. The effect of tobacco and coffee is frequently seen in cases of pruritus, and in private practice I have fallen into the habit of forbidding all stimulants on the ground that they do no good and may do harm. In charity practice it has often struck me as the height of folly to prescribe medicine for patients who are living largely on tea and beer, and whose symptoms would speedily disappear under a judicious regulation of diet. Indeed, it is difficult to appreciate what dietetics will do in the treatment of cutaneous and other diseases unless we move, for the time being, a suspension of the Pharmacopœia.

Sulphibenzoate of Sodium.—This new antiseptic is described by Heckel, in *Comptes Rendus CV.*, p. 896, as prepared by dissolving sodium benzoate in a strong solution of sodium sulphite. It is said to be very soluble in water, and to be absolutely innocuous to human beings, even if taken in large doses. It has been tried in the Hospital of Saint Mandrier, and it is reported as the result of the clinical experiments conducted there, that a solution made by dissolving a drachm in a quart of water, is superior to carbolic acid as an application to wounds, and that it may be compared in value to the salts of mercury without having their poisonous properties, or to iodoform without its disagreeable odor. The physical and chemical properties of the compound have not yet been published.—*Provincial Medical Journal*, January 2, 1888.

Guaiac in Scarlatina.—Dr. Armstrong, of Detroit, relates his experience in the use of guaiac as follows:

In the following sixteen cases since treated with this remedy, including four of a very severe type, it has not disappointed me in a single instance, though I did not always use it to the exclusion of other medicines when they were indicated. Where constipation and scanty secretion of urine occur, I know nothing better than the pulv. jalapæ co., given in large enough doses to produce free evacuation of the bowels. When the headache is intense and the temperature is high, in the commencement of the attack, I combine with the guaiac, aconite in small doses, often repeated. And when the guaiac is prescribed alone the results are better when given frequently, *in small doses*, deing due, perhaps, to its local effect. Another point of no small importance, as the disease is one occurring mostly in children, is its agreeable taste, when combined with simple syrup, or elixir. The fluid extract is the only preparation of the drug I have used, although the tincture, or the ammoniated tincture, might be equally effective. The formula most often prescribed has been:

R.—Fld. ext. guaiac . . . . ℥ ij.
Tr. aconit. . . . . ♏ vj.
Syrup . . . . q. s. ad. ℥ ij.—M.

Sig.—One-half a teaspoonful every two hours, for a child one to two years old.

This dose might be increased or the medicine given oftener, though I have not found it necessary to give it in large doses. It is taken without the addition of any water, as a rule, so as to get its best local effect.—*Medical Age*, December 26, 1887.

Strophanthus in Russia.—Dr. A. Kazem-Bek, of Kazan (*Vratch*, Nos. 40 and 41, 1887), relates seven severe cases treated by tincture of strophanthus (one part of the seeds to ten of alcohol), five drops being given every three hours, four times during the first day, and ten drops three times daily subsequently. The cases included chronic myocarditis, with consecutive cardiac dilatation, with calcareous deposits on the aortic valves and walls; mitral stenosis, with regurgitations (two cases), alone or complicated with parenchymatous nephritis; bronchial asthma, with pulmonary emphysema (two cases); aortic stenosis, with regurgitation; and cardiac neurosis in a hystero-epileptic woman. In only one case, that of a woman, aged thirty-seven, with rheumatic mitral disease and chronic nephritis, did the drug partly fail, and, even in that case, it proved beyond all comparison better than succinate of caffeine and sodium, or digitalis with valerian, or grindelia robusta, or convallaria, with which the lady had been successively treated before. In the remaining six cases, strophanthus produced a striking improvement, usually in a very short space of time; dyspnœa ceased; the paroxysms of bronchial or cardiac asthma, as well as œdema, gradually disappeared; the

heart's action became much less frequent and more regular, and the pulse fuller and stronger; while the daily amount of urine considerably increased. When taking the medicine, the patients slept soundly and quietly for many successive hours. This circumstance is attributed by Dr. Kazem-Bek partly to an improvement in their general state, but partly to a direct sedative action of the drug on the brain, since a drowsy condition was observed by him also in dogs after an intravenous injection of the tincture. The experiments on animals (frogs, turtles, and dogs) were undertaken by the writer mainly with the object of elucidating the question whether strophanthus acts solely on the muscular tissue or not. He has come to the conclusion that the drug acts, not only on the cardiac muscle itself, but also on the cardiac ganglia and peripheral endings of the vagi. This conclusion is based on the following facts: 1. That atropine gives rise to a considerable acceleration of the heart's contractions which have been previously slowed by strophanthus; and 2, that strophanthus does not slow the heart's beats which have been previously accelerated by atropine. Dr. Kazem-Bek has also found that strophanthus increases the blood-pressure, but this increase seems to be independent of the heart's contractions; at least the arterial tension continues to rise, while the number of the beats remains unchanged.—*British Medical Journal*, January 21, 1888.

Lanolin a Prophylactic Against Bacteria. — Gottstein, of Berlin, after numerous experiments, has found that lanolin is not decomposed by the agencies commonly destroying fats, and that the integument, when it has been thoroughly applied, is much less likely to admit poisonous germs and materials than otherwise.—*Therapeutische Monatshefte*, January, 1888.

Pulmonary Tuberculosis in a Cat.—Filleau and Léon Petit, in the *Journal de Médecine de Paris* of January 1, 1888, report the case of a cat, frequenting their laboratory and clinic room, which devoured eagerly the sputa from phthisical patients.

Well-marked symptoms of pulmonary tuberculosis developed, and the animal seemed losing ground rapidly. On the intervention of pregnancy the advance of the tubercular disease was checked; pregnancy went on to term, and a litter of well-formed, apparently healthy kittens was born. The mother continued in comfortable health until she was bitten by a rabid dog, several months after confinement, when she was immediately killed.

Caseous tubercular matter and bacilli were found in the lungs; tuberculosis was latent; the other organs were healthy.

Urethan. — This hypnotic, introduced by Schmiedeberg, has been found useful in insomnia from cerebral hyperactivity; in the adynamic insomnia of neurasthenia; in heart diseases; in phthisis. It does not control pain; it is unreliable in the excitability of alcoholism. It may be used in mental diseases, where mania is not too violent; it speedily loses its effect through the patient becoming accustomed to it.

In full doses it checks convulsions caused by strychnine.

Its dosage is from 15 to 30 grains; hypodermatically from 7½ to 15 grains.

It may be prescribed as follows:

Urethan	℥1½.
Aq. destill.	℥15.—M.

Sig.—Dose, 1 to 2 teaspoonfuls.

Huchard prescribes, for children:

Urethan	℥1.
Aq. destill.	℥10.
Syr. aurant. cort.	℥5.—M.

Sig.—Teaspoonful at half hour or hourly intervals, until sleep is produced,

And

Urethan	gr. 3.
Aq. flor. aurant.	℥10.
Syr. simpl.	℥5.—M.

Sig.—A child's teaspoonful hourly.

—*Deutsche medicinische Wochenschrift*, January 5, 1888.

Hæmatoma of the Larynx.—Ter Maten, in *Wiekablt voor Geneesk*, 1887, i. p. 679, reports the case of a teacher who had suffered from hoarseness for five years, which he referred to a severe cold.

Laryngoscopic examination showed a bluish-red tumor on the left vocal cord. When grasped by forceps it collapsed, ejecting a quantity of blood. The tissue which had covered it was easily removed.

Erysipelas of the Auricles following Piercing of the Lobes.—Dr. Thorner reported at a meeting of the Cincinnati Medical Society three cases of erysipelas of the auricles, originating from the habit of piercing the lobes. One occurred in a child, whilst the other two were those of adults. The erysipelas spread in all cases over face and scalp.—*Cincinnati Lancet-Clinic*, Feb. 4, 1888.

Spontaneous Detachment of a Laryngeal Polypus.—At a meeting of the Berlin Medical Society, December 21st, Prof. Fränkel read a very interesting communication from Sanitätsrath, Dr. von Swidersky, of Posen, on a case of extrusion of a polypus of the larynx during the act of coughing. Dr. von Swidersky had known the patient, a cavalry officer, since 1848. In 1862 he began to be affected with hoarseness and dyspnœa, and Dr. Valentiner then diagnosed laryngeal polypus. Other authorities in Berlin and Tübingen were consulted; one of these was of opinion that villous cancer was present, because the growth (plainly visible on the posterior third of the left vocal cord, and attached to its inferior aspect) bled profusely when touched. All who were consulted advised tracheotomy, but this the patient would never hear of. The dyspnœic attacks occurred from time to time, often accompanied by severe hemorrhage, and the hoarseness increased. In 1870, von Swidersky, tracheotomy being still refused, attempted local treatment. The tumor was first touched with caustic potash (well solidified), and afterward daily with a concentrated solution of ergotin. On May 12, 1870, the patient was in imminent danger of suffocation, but next day his medical attendant found him in good voice and spirits, enjoying a cigarette with his coffee. He triumphantly pointed to a substance which he had coughed up, and which he had placed in water. Microscopical examination showed that it was a fibroid polypus. The patient has remained well since then, and

there is only a slight inclination to laryngeal catarrh. V. Swidersky attributed the cure to the ergotin treatment. Professor Fränkel had never in his large experience met with a similar case, and was of opinion that practically we should never trust to such a lucky termination, quite as uncertain as the chief prize in a lottery. But he had seen a case in which a polypus had very gradually retrogressed. Dr. Böcker had independently diagnosed the existence of a polypus in this case, so that there was no doubt about it. Hensch thought that it might have been coughed up without the patient's knowledge, and argued from analogous rectal polypi in children, but Fränkel persisted in his opinion that the improvement in his case had been but gradual, and promised further details in a paper on the subject about to appear.—*British Medical Journal*, January 21, 1888.

Iodoform in Antiseptic Gynecology.—POZZI has used the following fluid for impregnating gauze:

Iodoform	ʒ12½.
Glycerin.	ʒ25.
Spirit. vini.	ʒ21⅞.

Iodoform suppositories may be prepared with

Iodoform pulv.	ʒ5.
Gummi arab.	
Glycerin.	
Amyl.	āā gr. 30.

—*Le Progrès Médical*, January 7, 1888.

Fatal After-effects of Chloroform.—DR. UNGAR has recently published in the *Vierteljahrschrift für gerichtliche Medicin* an account of some researches which he has made in order to determine precisely the effects of chloroform on the tissues. He kept a large number of rabbits and dogs under chloroform for many hours, with intervals of suspension of the anæsthesia. After death, marked changes were discovered in the tissues. The muscular tissue of the heart was very fatty, and numerous points of fatty degeneration were found in the endocardium. Similar fatty changes were found in the epithelium of the larynx, trachea, bronchi, pulmonary alveoli, and gastro-intestinal tract. The epithelium of the convoluted tubules of the kidneys was either full of fatty granules or was in process of breaking down. The liver cells and the epithelium of the smaller biliary ducts were affected in a similar manner. Fatty changes were also detected in the striated fibres of the diaphragm, and, though less marked, in the rectus abdominis and the extensors of the thigh. In nearly every case these appearances were most marked the longer the animal had been kept under chloroform. Dr. Ungar observes that the animals were healthy, whilst in the case of patients fatty changes due to illness, cachexia, alcoholism, etc., often exist before the narcotic is given. In such a case the chloroform may do much harm even when the patient recovers. Some of the animals died more than twenty-four hours after coming to from the final dose of chloroform. Dr. Ungar is therefore induced to believe that death shortly after operations may be more often due to the narcotic than is generally supposed. His researches do not confirm Nothnagel's theory that the fatal action of chloroform consists in the disintegration of the colored corpuscles of the blood. He believes that the anæsthetic acts directly on the chlorine and chlorine salts diffused through the tissues. The successful administration of chloroform during labor, to which Dr. Ungar refers, appears to prove that the anæsthetic acts less seriously in our species than in animals, yet his paper contains important suggestions which should not be overlooked.—*British Medical Journal*, January 14, 1888.

Formulæ for Eczema.—BROCQ, in the *Revue Gén. de Clin. et de Thér.* of January 12, 1888, has collected the following formulæ for the treatment of eczema, from various authors:

Cold cream	ʒ 7½.
Glycerine	ʒ 2.
Oxide of zinc	gr. 30.
Tinct. of benzoin	gtt. 15.

Also,

Tannin	gr. 30.
Calomel	gr. 15.
Glycerate of starch	ʒ 7½.

Salicylic acid may be combined as follows:

Acid. salicylic.	gr. 8 to 30.
Zinc. oxid. pulv.	
Amyl. pulv.	āā ʒ 6.
Lanolin.	ʒ 7½ to 10.
Vaselin.	ʒ 5 to 2½.

Boric acid ointment:

Acid. boric. pulv.	gr. 30 to 90.
Vaselin.	ʒ 7½.
Balsam Peruv.	♏ 8.

Mix; add

Acid. boric. pulv.	gr. 75.
Adipis or vaselin.	ʒ 2½.
Lanolin	ʒ 8¾.

The Treatment of Warts by Arsenic.—PULLIN describes among others, the following case illustrating the value of arsenic in treating warts:

Minnie P., æt. four, I happened to see while attending her mother in a confinement, and was struck by the peculiar appearance of one of her little fingers, the ungual phalanx of which was apparently the seat of some abnormal growth, being irregular and bulbous; on closer examination, however, it proved to be nothing more than a crop of warts, which almost entirely covered the nail. On the same hand there were many others, and likewise on the opposite hand. After taking liq. arsenicalis, ♏j, for ten days, most of the warts had fallen off, and those which still remained I easily removed with my finger and without the slightest pain to the child. Several other cases, in which I have treated these unsightly and troublesome growths in the same way, I could record, but in every instance the cure has been complete and rapid; and I think the above case in itself alone proves the value of arsenic for treating warts; for it is certainly equally rapid in action, and moreover has the great advantage over the caustics in being painless, which is of so much importance in treating young children.

Creasote Hypodermatically in Phthisis.—ROSENBUSCH, in *Wiener med. Presse*, No. 3, 1888, reports good results from vegetable creasote in almond oil, three per cent., injected beneath the skin in the second intercostal space, or the supraspinatus fossæ. He intermitted the treatment in pauses of two or three days.

The Medical News.

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SATURDAY, FEBRUARY 18, 1888.

SUDDEN DEATH IN TYPHOID FEVER.

MONNERET has said, with less sacrifice of the truth than is usual in epigrams, that "typhoid fever includes all pathology." It may be also said that its terminations illustrate every manner of dying. In the twelve or fifteen cases that prove fatal in every hundred of the disease, death comes in various forms—slowly, by gradual asphyxia or progressive adynamia; rapidly, by intestinal perforation, acute peritonitis, profuse hemorrhages, or nervous accidents; suddenly, by processes not yet fully understood. This last mode of termination is not the less important because of its comparative infrequency. It is a calamity neither to be foreseen nor prevented, and must, therefore, interest us practically as a misfortune possible in any case; theoretically, as a problem in the pathology of typhoid fever yet awaiting, nay, now urgently demanding solution. To its consideration DEWÈVRE has recently devoted an elaborate and important article in the *Archives Générales de Médecine* for October and December, 1887.

Cases of sudden death in typhoid fever from obscure causes were recorded by Louis, Chomel, Andral, and others in the second quarter of the century; later, Virchow, Zenker, and Wunderlich published many observations concerning this accident, but it remained for Dieulafoy, in 1867, to ascribe to the subject its due importance, and to furnish an hypothesis as to its cause. Since then, Griesinger, Hayem, Laveran, Longuet, Jaccoud, Tripier and a host of others have published cases. Dewèvre estimates the proportion of sudden deaths in typhoid at four per cent. of all fatal cases. This estimate, based upon French military statistics, is certainly higher than an extensive knowledge of the disease, as seen in hospital and private practice in the United States, would warrant us in making. It is most common about the age of twenty-five, rare in infancy and after forty. There appears to be no constant relation between the debility and constitutional feebleness of the patient and this accident, which very frequently befalls young and vigorous subjects. It is of more frequent occurrence in military than in civil life. As regards the period in the evolution of the attack in which this accident is most likely to occur, it is toward the close of the illness and especially in the third week. It is of more frequent occurrence in cases of moderate severity than in those which are on the one hand grave, or on the other, mild. Dewèvre has succeeded in collecting only four cases of sudden death in typhoid relapse. Like other peculiarities of the disease, it is met with in varying frequency in different epidemics.

The administration of carbolic acid, sodium salicylate, or quinine in large doses has been regarded as predisposing to sudden death. The method of Brand has especially been accused of determining to this unfortunate issue by the violence of the perturbations which it excites in the organism. It is certainly true that sudden death has often occurred at the moment of some movement on the part of the patient, or of some unusual emotion. On the other hand, many of the cases have occurred in sleep. There is nothing in the history of the cases that will enable one to foresee this accident. Dyspnœa has been observed; syncope and convulsions may occur. Even at the moment of death, the symptoms are without significant characteristics. Very often the patient simply grows suddenly pale, sinks back, and dies before the attendants can render assistance. When symptoms occur they are of nervous origin, intense dyspnœa, angina, spasmodic cough, convulsions, sometimes limited to the face and upper extremities, sometimes general.

In a large proportion of the cases the necropsy fails to reveal lesions adequate to explain the sudden death. There are the characteristic lesions of typhoid: nothing more. In other instances the anatomical changes are significant. We find granular

and fatty degeneration of the heart, proliferative endarteritis of the branches of the coronary arteries, pericardial effusion, in many cases doubtless due to the death agony, endocarditis, heart-clot, embolism of the pulmonary artery. The lungs are often intensely congested, and there may have been bronchitis or pneumonia. The condition of the brain is by no means constant. There may be intense congestion, or, on the other hand, in many cases its substance has presented an extraordinary paleness. Alterations of the kidneys are present in by far the greater number of cases.

Dewèvre reviews the various theories of the mechanism of sudden death in typhoid fever with great acumen. The theory of pulmonary embolism, that of thrombosis of the heart, that of degeneration of the heart muscles, that of obliterative endarteritis and cardiac ischæmia are carefully examined, and each in turn rejected as inadequate. So with the ingenious theory of intestinal reflex proposed by Dieulafoy, and that curious theory of stomachal reflex of Tambareau, and that of cerebral anæmia, and the theory of uræmia and that of overwhelming typhoid intoxication. Each may serve, according to the views of its advocates, best to explain cases or even groups of cases, but no one of them is generally applicable.

Sudden death, such as is here described, is a special accident of typhoid fever closely associated with the anatomical changes peculiar to that disease. It comes only in one of three ways: the patient succumbs to one of the common causes of sudden death, as hemorrhage, embolism, and the like; he dies of uræmia due to the nephritis of typhoid fever; or life is destroyed by special localization of the infecting principle upon the pneumogastrics.

URINE FEVER.

Mr. Reginald Harrison, of Liverpool, devotes most of the first Lettsomian lecture, which is published in the *British Medical Journal* of January 7, 1888, to the consideration of urine fever. We are all familiar with the phenomena of rigors and fever which sometimes follow surgical procedures upon the male urethra, and which are usually spoken of as urethral fever. Harrison considers this term to be inappropriate, since the febrile manifestations are not dependent upon any peculiarities of the urinary passages, but upon the contact of urine with a wounded surface, where certain poisonous products are generated, and by their absorption produce the well known symptoms. As these symptoms are entirely due to the contact of the urine, he denominates them, urine fever. His argument is very suggestive, and carries much weight with it.

The anatomical structure of the urethra is such that it is water-tight, the urine passes over it, but does not come in contact with an absorbent surface; when, however, a catheter or other instrument is introduced the epithelium is liable to be detached, and then rigors and fever frequently supervene; of course, the danger increases with the amount of injury to the tissues, hence, prolonged instrumentation, internal urethrotomy, and other serious procedures are not infrequently followed by urethral or urine fever. That this fever is due to the absorption of toxic substances from the urine is proven by the fact that, if the urine is withdrawn by suprapubic aspiration, and whilst the bladder is empty, the same manipulations are performed, no fever will result, because urine does not come in contact with the raw surfaces.

Noticing the infrequency of these phenomena after lithotomy and incisions into the bladder, where the urine flowed freely over the wound but was not retained in it, Harrison arrived at the conclusion that fresh urine is incapable of originating this fever, and that a pocket or sac into which urine can be collected and undergo decomposition, is essential. In order to verify this, he performed first internal urethrotomy and then perineal section on the same person in several cases, and introduced a drainage tube into the bladder, and in none of them was any urine fever produced.

Again, there was immunity to a great extent in those who were placed under the influence of large doses of quinine, the explanation being that it acted as an internal antiseptic and to a large extent sterilized the urine and rendered it innocuous. This result also followed the injection of sublimate or boric acid solutions into the bladder. He considers the poisonous product to be a ptomaine, which develops as the result of heat and moisture.

The following summary represents his views upon the etiology of urine fever. 1. That the presence of urine in relation with a recent wound is necessary for the development of urine fever. 2. That the mere contact of urine with a wound is not sufficient for its production. 3. That the retention of fresh urine within the area of a recent wound is almost invariably followed by its development in a greater or less degree. 4. That where urine is placed under

such circumstances as have been last mentioned, the liability to the development of urine fever is greatly diminished when it is sterilized by local or general means. 5. That the retention of fresh urine, blood, and the débris of damaged tissue in the confines of a recent wound for a certain time at a temperature of somewhere about 100° F., could hardly be possible without chemical changes taking place in the constituents referred to. 6. That there is a common origin for urine fever is rendered probable by the uniformity of the symptoms attending it, which, though different in degree, are identical, whether following a surgical operation or an accidental wound.

ANTIPYRIN AS A HÆMOSTATIC.

Although this youthful drug has been already recommended by various practitioners for almost every disease to which human flesh is heir, but lately still another application has been found for it. Byvalkevitsch reports in *Vratch* his experiences with antipyrin in stopping hemorrhage, and states that doses of twenty to eighty grains arrested hemorrhage during phthisis, even when ergot had failed, and he lauds it considerably in consequence.

Henocque, at a recent meeting of the Société de Biologie, called attention to this use of the drug (*Gazette Hebdomadaire*, January 13, 1888), and to the fact that he proposed this remedy in 1884; that Arduin and Huchard had reached similar conclusions concerning it; and that Casati, in Italy, Goltz, in Switzerland, and several others have confirmed this belief.

The difference between the methods of Henocque and Byvalkevitsch consists in the fact that Henocque uses a powder or an ointment of antipyrin, while Byvalkevitsch gave the drug internally. How it is possible for a drug which affects the circulatory system as slightly as does antipyrin, to arrest hemorrhage when taken internally we fail to see, and unless the method of Henocque retards hemorrhage mechanically it is useless; even if this be the case, it is unnecessary, in view of more easily used and more valuable methods.

At the annual meeting of the New York State Medical Society, held at Albany last week, the following were elected officers for the ensuing year:

President—Dr. S. B. Ward, of Albany.

Vice-President—Dr. A. Walter Suiter, of Herkimer.

Treasurer—Dr. C. H. Porter, of Albany.

Secretary—Dr. Wm. Manlius Smith, of Syracuse.

Censors—Southern District: Drs. J. S. Warren, of New York; W. B. Chase, of Brooklyn; W. H. Helm, of Sing Sing. Eastern District: Drs. Joseph Lewi, of Albany; Thompson Burton, of Fultonville; L. McLean, of Troy. Middle District: Drs. Henry Flood, of Elmira; Robert Frazier, of Camden; I. N. Goff, of Cazenovia. For Syracuse University: Dr. I. N. Goff.

Committee of Arrangements—Drs. E. L. Partridge, of New York; F. C. Curtis, of Albany; and C. S. Merrill, of Albany.

The New York Academy of Medicine has called the attention of the Board of Health to the practice of druggists to dispense filtered water for distilled water. An investigation was ordered, and samples of water were obtained from twenty-five prominent druggists, only one of which was distilled. The other samples were filtered Croton water, containing more or less organic impurity, sufficient in many instances to impair the efficiency of the prescribed solution. This substitution of filtered for distilled water is held to be an adulteration, which is punishable by a fine of fifty dollars for the first offence. The druggists have received warning that proceedings will be taken against those who in the future are found guilty of this form of substitution.

For the furtherance of female medical education in India, prize-funds have been inaugurated by the Countess of Dufferin and others. The first prize of the Dufferin-fund has been claimed for a student of the Grant Medical College at Bombay. Sir Walter de Souza has given the Calcutta Medical School a trust fund of two thousand rupees, additional to former donations, to aid the female students of medicine who repair to that school of the Indian metropolis.

The municipal authorities of Paris have for some time been operating their system of "holiday colonies" for needy children, the results of which are beginning to be studied. The boys gained on an average three and a half pounds in weight and the girls four, and they continued to grow in weight for nearly a month after their return to the city at a still greater rate. The boys gained on an average three-quarters of an inch in chest-girth.

In the *British Medical Journal* of January 21st, appears a news item, with the caption "Protection

in the States," which recites that not long ago, by virtue of a law forbidding the importation of contract labor, a trained nurse who had been engaged in London to take charge of the nursery department of the Pennsylvania General Hospital, was forbidden to land in New York, and was sent back by the next steamer on the ground that the engagement was contrary to the law. The same fate is probably in store for Dr. Heneage Gibbes, late of Westminster Hospital, who accepted an engagement as Professor of Physiology at the University of Michigan. The item infers that an effort will be made by disappointed candidates and possible rivals of Dr. Gibbes to have the law made applicable to him if he should venture to land in this country for the purpose of accepting his professorship. The article closes by saying that a more absurd kind of legislation it would be difficult to imagine. The absurdity consists in the supposition that it was the intent of the law to reach any persons of the station and profession to which Dr. Gibbes belongs; and, as was announced in our last issue, Professor Gibbes has already reached Michigan and begun his instruction in the University of that State.

REVIEWS.

Handbook on Diseases of the Skin, with Especial Reference to Diagnosis and Treatment. By Robert Liveing, A.M., M.D. Cantab., Physician to the Department for Diseases of the Skin at the Middlesex Hospital, etc. Fifth edition, revised and enlarged. 12mo. pp. 451. London and New York: Longmans, Green, & Co., 1887.

The author states that in this, the fifth edition of his handbook, many articles have been rewritten, and new ones have been introduced for the first time on erythema serpens, spurious erysipelas, malignant pustule, mycosis fungoides, colloid disease of the skin, rhinoscleroma, xeroderma maligna, scrofuloderma, Paget's disease, ulcers, leucoplakia, and lymphangioma. The reader will find, moreover, a suggestive chapter on nomenclature, together with remarks on classification.

After a careful perusal of the book we can recommend it as one of the most reliable works of its kind on the subject. It is by no means a compilation. It shows considerable originality, and is evidently the work of one who has seen a good deal of dermatology. The teaching on the whole is sound. There are some points, however, to which we must take exception, several of which may be briefly stated. Thus on page 29 the author states that he knows of "no one definite skin disease that can well be called ecthyma." In this country, especially in our large city hospitals and almhouses, a distinct idiopathic disease entitled to the term ecthyma is not infrequently met with. The existence of impetigo simplex is in like manner questioned. Dermatitis exfoliativa is made synonymous with pityriasis rubra, which we think a mistake, for there exist unquestionably two diseases with clinical features quite different, and the two names are therefore useful.

We are pleased to note that the author comes out boldly in favor of the non-contagious (non-parasitic) theory of alopecia areata. He says: "I have witnessed no case in which any proof was shown that the disease was caught from another affected person." In conclusion we are compelled to say that the weakest part of the book is the treatment, which rarely receives sufficient attention, and in the consideration of some diseases is positively wanting. Thus, taking up several diseases at random we find but three lines devoted to keloid; but two lines to alopecia areata; while comedo (sometimes a difficult affection to treat successfully) and purpura are both dismissed without any allusion to treatment.

The book will prove, we think, more valuable to the practitioner than to the student, and among other reasons because it possesses considerably more of the author's own experience than is usually met with in similar works.

SOCIETY PROCEEDINGS.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, February 2, 1888.

The President, Thomas M. Drysdale, M.D., in the Chair.

Dr. William Goodell reported a

CASE OF SPLENECTOMY.

Mrs. R., aged forty years, had chills and fever in early life, but after her marriage, eighteen years ago, she removed to a healthy country town and had no return of the disease. She has had two children, the youngest seven years ago. At this labor she had a serious flooding and was confined to her bed for six months from excessive prostration. Since that time she has never been well, being weak and miserable. Her monthly periods were always free and generally painful. Last March she had a very severe attack of what her physicians called malarial fever, and her life was threatened by repeated attacks of hæmatemesis and hæmoptysis. A tumor was now discovered which was pronounced to be a uterine fibroid and she was sent to Dr. Goodell. He found the womb pushed low down and retroverted by a solid tumor, which started from the region of the right ovary and ran diagonally toward the splenic region. It entered the pelvis so low down as to cause bulging of the anterior wall of the vagina. The womb seemed to be independent of the tumor, for the former could be moved about freely with the sound, yet when the tumor was pushed upward it conveyed motion to the womb, drawing it also upward. The tumor was never free from pain and the complexion of the woman was markedly cachectic. The diagnosis was made of sarcoma either of the right ovary or of the omentum.

At the operation a very long incision was needed, reaching not quite up to the ensiform cartilage. The tumor was of a dark purple color and was attached in every direction by very long, tortuous, and wholly denuded vessels, which looked like the largest earth worms and were of analogous length. Most of the vessels came from the omentum, which had disappeared,

apparently by being incorporated with the the tumor and by having its connective tissue and fat removed by absorption, leaving the bloodvessels bare. These vessels were either single or else grouped in large bundles and had all to be ligated. By them the tumor had evidently been nourished, for what looked like a pedicle was slender, long, and twisted. It was lost in such a mass of livid veins that Dr. Goodell did not dare follow it up to its source. His diagnosis had been sarcoma of the omentum, but he was so uncertain of it that he sent the specimen to Dr. Formad, who pronounced it a leukæmic spleen. It weighed not quite six pounds. The woman did well for four days, then symptoms of embolism set in, the sputa became streaked with blood, and she died on the sixth day. So far as he can learn from the literature on the subject his case made the eighteenth in which a leukæmic spleen had been extirpated and all had died save one.

Dr. Harris said that the case of recovery after operation for removal of a leukæmic spleen spoken of by Dr. Goodell had occurred under Dr. Franzolini, of Nudine, in Northeastern Italy. The proportion of leucocytes was small, which accounted for the recovery of the patient. The diagnosis had been made before the operation.

Dr. Parish had a few years ago seen a case with the late Dr. Wallace in which a diagnosis of fibroid of the uterus had been made. A tumor the size of the two fists was found near the side of the uterus. The patient developed peritonitis and was tapped; some dark fluid was withdrawn. Death took place a few months after, the peritonitis having been cured. The spleen was adherent to the uterus and to the pelvic brim.

Dr. Goodell called attention to the hæmoptysis and hæmatemesis in his case, which were the usual symptoms of a leukæmic spleen; but he had not been informed of them until after the operation had been performed, and, therefore, he did not have that clew toward forming a diagnosis.

DERMOID CYSTS.

Dr. Goodell also exhibited two dermoid cysts which he had on that day removed from a girl aged sixteen years. He had brought the specimens down because the largest one contained daughter-cysts or, at least, round bodies resembling them; yet he had hitherto found that all dermoid cysts which he had removed were single chambered and did not contain smaller cysts.

Dr. Hamill presented

A FOUR WEEKS' OVUM

entire with the decidua. He presented this specimen for a twofold reason; first, on account of its comparative rarity, and, second, to elicit from the members their views on the after-treatment of abortion. The decidua vera is not, as a rule, thrown off with the ovum entirely. Dührssen says, "From a personal experience with more than 150 cases of abortion in the service of the Charité of Berlin," that "the retention of portions of the decidua vera is not the exception, but the rule," and Tarnier says "That ordinarily the uterine decidua remains adherent to the uterus." Whether it is safer to leave this in the uterus and allow nature to throw it off, or to remove it at once, is the particular point he should like to hear the members discuss. For his own part, he felt sure that it should be immediately removed.

Dr. Hirst said that where the decidua vera is retained, as is the rule in early abortions, one of two things happened; the mass either putrefied and thus became a source of septic infection, or it became greatly thickened and remained as a foreign body exciting frequent hemorrhage or leucorrhœa. He always cleaned away any débris left in the uterus after abortion.

Dr. Goodell agreed fully with Dr. Hirst as to the propriety of removing the retained fragments of the placenta or the membranes, but he had a word to say about the manner of their removal. He deemed the much vaunted curette, whether sharp or blunt, a very inferior instrument, especially so whenever the fragments had been retained for several weeks. Not only did the curette bruise and injure the unimplicated portion of the womb, but it tended to glide over the fragment, merely scraping its surface. Sometimes, indeed, it would hook up one end of the fragment, and, after causing a great and needless flow of blood, would slip off. So often had he been disappointed with it, nay, even alarmed by the great loss of blood, that he now used either a small fenestrated polypus forceps, when the os was dilated enough to admit it, or a slender handled catch-forceps. With these instruments the fragment was invariably seized and removed by a twisting movement, while the womb itself sustained no injury whatever. It was, in fact, safer to use these instruments in the womb than to catch a stone in the bladder with the lithotrite.

Dr. Parish had seen a number of mistakes made with the curette. He had been called to a case and found a woman who had been bleeding for four or five months. Her former attendant had curetted her and pronounced the womb empty. He and his colleague dilated the cervix and removed a body as large as his two fingers. In another case the uterus was curetted by the attending physician and pronounced empty. Within twenty-four hours the patient aborted. These cases well illustrate how one may be deceived as to when the uterus is empty when relying on the curette. In his own practice, after three months, if there is retention he introduces his finger and delivers everything. He thinks with Dr. Goodell that something more reliable than the curette must be used to enable one to say that the uterus is empty after abortions in doubtful cases.

Dr. Longaker does not interfere before the third month at all unless the patient has decided signs of retention—such as hemorrhage, patulous os, etc.; otherwise it is, as a rule, safe to conclude that everything has come away. During the third, fourth, and fifth months retention is very frequent. He thought it surprising what a small portion of placenta would give serious trouble: even small shreds will keep up a very serious hemorrhage. He always removes everything which has been retained and uses the finger and very frequently anæsthetizes the patient.

Dr. R. Stewart asked the members of the Society in what proportion of cases they had to interfere. He has never used the curette for this purpose, and has never failed to remove with forceps of proper size. The hemorrhage generally ceases in from twelve to thirteen hours; if not he investigates and usually finds some débris left behind; but is convinced that, if there has been no improper interference at the time of the abortion, such cases are exceedingly rare. He agrees with Dr. Longaker as to the amount of trouble kept up by small pieces of membrane, etc.

DR. HAMILL also presented

A FŒTUS SHOWING INTRA-UTERINE RACHITIS.

This specimen presents a number of anomalies; probably the one most rare is the condition of intra-uterine rachitis; you will note the marked rachitic condition of both femurs. So far as he was able to find, but fifty-three cases have been collected by Schorlan and Gräfe. This condition of the bones in rachitis may be simulated by the arrest of bony development in those cases of fœtal cretinism occasionally met with in Europe. The absence of the three fingers and corresponding metacarpal bones would, following the classification of Geoffrey St. Hillaire, place this among the hemeteratic class, and the subdivision of that class known as anomalies by numerical diminution. This form of monstrosity is not met with very frequently. The absence of the fibulas renders the specimen still the more rare.

EXCISION OF THE LARGE INTESTINE.

DR. J. PRICE exhibited a piece of the large intestine which had been removed that day by Dr. Charles B. Penrose. The patient, a woman, had not had a passage of the bowels for twenty-eight days. There was enormous distention. The constriction was easily found on the right side of the uterus and posterior. The intestine was punctured and a gallon or more of feces removed. The gut was then resected, a piece twelve inches long being removed. The two ends of the gut were then united in half their circumference and the other half stitched to the abdominal opening, making an artificial anus. Dr. Agnew had seen the case and had recommended immediate operation. The woman was a patient of Dr. Bernardy's. She is now doing well. He believed that Mr. Tait had first advised the preliminary puncture to relieve the distention in conditions that cannot be dealt with by resection. He had some letters from Dr. McMurtry, of Danville, Ky., who had been called forty-five miles into the country to see a physician twenty-six years old. On opening the abdomen he found two perforating ulcers of the cæcum with local peritonitis. He had trimmed the edges of the ulcers and closed with Lembert sutures; irrigation and drainage. On the fourth day, pulse 92, temperature 99°, and patient had complete evacuation of bowels.

THE MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, February 3, 1888.

THE PRESIDENT, JAMES PERRIGO, M.D., IN THE CHAIR.

DR. STEWART showed a case of

AMYOTROPHIC LATERAL SCLEROSIS,

and made the following remarks:

The patient, a man aged thirty-four, always enjoyed good health until his present affection began, about a year ago. The first symptom complained of was a feeling of pricking coupled with a cold sensation on the ball of the left thumb. Shortly afterward wasting of the thenar eminences was noticed, and this was quickly followed by wasting of the interossei of the same hand. The patient now has very marked atrophy of the left thenar and hypothenar eminences, of all the interossei of the same side, with slight wasting of the flexors on the anterior surface of the forearm and of the biceps and deltoid of the same side. The spinati as well as the rhomboids and pectorals are the seat of marked atrophy. There is slight wasting of the corresponding muscles of the right hand, arm, and shoulder. The atrophic muscles are subject to fibrillary twitchings. Many apparently normal muscles are also subject to these twitchings; he complains of "waves of twitchings" passing through the muscles of the head. The muscles of the lower extremities are very frequently the seat of these troublesome twitchings. The left hand and shoulder atrophic muscles exhibit a modified reaction of degeneration, the contractions being very slow, while the ASZ < KSZ. During the past ten days there has been a gradually increasing loss of power in the left lower limb. This has now attained a degree almost sufficient to prevent the patient from going about. The degree of paralysis varies considerably from day to day. The paralyzed muscles are neither atrophied nor hypertrophied; they are, however, in a constantly hypertrophic state. There is marked exaggeration of the knee-jerk, ankle clonus is present. The biceps and triceps reflexes of the upper extremities are marked also. The integument over the wasted districts is constantly covered with a profuse, clammy perspiration, and at times a papular rash appears lasting only a few hours. There is no atrophy of any of the face muscles, and no history of heredity. The case is evidently myelopathic in origin. It is a well-marked example of Charcot's amyotrophic lateral sclerosis.

DR. SHEPHERD presented the right half of the lower jaw which he had recently removed for

PERIOSTEAL SARCOMA.

Patient, aged forty-nine, first noticed swelling six months ago, this was accompanied by the loosening of two molars. Swelling increased rapidly within the past three weeks. The tumor surrounded the jaw at its angle and was about the size of an orange, the bone was not affected. On microscopic examination it proved to be a round-celled sarcoma. Dr. Shepherd said in these cases the chance of local recurrence was very great.

DR. JOHNSTON exhibited for Dr. Ruddick a spinal column showing very extensive

CARIES OF THE VERTEBRÆ

with symmetrical psoas abscesses. The specimen was removed from a boy aged twenty. The caries involved the bodies of all the dorsal vertebræ. In front of the middle dorsal vertebra was a large abscess which had formed without giving rise to symptoms, this abscess was not connected with the psoas abscess. The bodies of the last dorsal and first and second lumbar vertebræ were completely destroyed, causing a marked angular curvature. The psoas abscesses were perfectly symmetrical, passing in front of the ilio-psoas muscle at Poupart's ligament, and following the tendon to the posterior part of the lesser trochanter, thus the abscesses had got to the back of the thighs. On the left side the abscess had reached the popliteal space. That on the right side presented a large fluctuating swelling in the middle of the back of the thigh and had filled up the space beneath the gluteal muscles. The abscess on the left side had been opened a few days before death and an enormous quan-

tity of pus evacuated. The lad had suffered from spinal caries for the last fifteen years, and had never had any treatment. Dr. Johnston failed to find any tubercle bacilli, either in the pus or in the walls of the abscess.

Dr. Johnston also presented a portion of the spinal column removed from a patient with

SPINAL CARIES AND GENERAL TUBERCULOSIS.

The bodies of the second and third lumbar vertebræ were infiltrated with extensive caseous areas, a small tuberculous abscess had formed on the right side at the level of the third lumbar body; this had involved a small vein opening into the vena cava inferior. There was acute miliary tuberculosis of both lungs, and this had caused his death. The patient had been under the care of Dr. George Ross, and had complained of very severe and deep-seated pain referred to the right sacro-iliac articulation.

Dr. Shepherd presented the kidneys and bladder removed from a patient on whom he had performed

NEPHROTOMY.

The history of the case is as follows: C. W., æt. sixty-six, a tall, thin man, who had always been healthy, though there was a tuberculous family history, some two years ago suffered from two attacks of well-marked renal colic affecting the left side. After this he made water more frequently, and occasionally passed bloody urine. He, however, attended to his business as usual. About a year ago he first noticed that his water was thickish; it would be clear for some days, then have quite an amount of deposit. His health failed considerably during the last six months, and in October last he took to his bed on account of a chill. The amount of "sediment" in the urine increased and micturition became painful as well as frequent; pain was referred to the point of the penis. In addition to this he had severe lumbar pain, chiefly on the right side.

Dr. Shepherd first saw him in the latter end of December, 1887. He was then in bed and suffering from disordered stomach, frequent and painful micturition, and severe lumbar pain. Examination of the bladder discovered a moderately enlarged prostate, but no stone. Urine, specific gravity 1010; alkaline; quantity daily, forty-five to fifty ounces, of which about one-sixth was thick pus. The urine was perfectly sweet smelling. On examining the lumbar region there was found to be much more resistance over the right kidney than the left and palpation gave a sense of fulness. Pressure below the last rib on the right side caused severe and sharp pain, pressure on the left side caused no pain. Dr. George Ross saw the patient with Dr. Shepherd and he was examined under ether and a distinct tumor was made out in the right lumbar region in the neighborhood of the kidney. By aspiration at this point some four or five ounces of clear fluid were drawn off, but no pus. This fluid was odorless, but on examination proved to be urine. After examination the patient passed bloody urine for two days. The diagnosis made was calculous pyelitis probably of the right kidney, but the history of renal colic on the left side and the evacuation of clear fluid from the right kidney made the diagnosis doubtful.

As the patient was growing rapidly weaker and was passing enormous quantities of pus, it was suggested that an operation might relieve the patient, though the result would be doubtful. On January 21st Dr. Shepherd, assisted by Dr. Fenwick, cut down on the right kidney. It was found embedded in a large amount of fat. On examination it was seen that the pelvis and calices were much distended; the kidney was incised and some six ounces of fluid evacuated; there was no pus but only clear, odorless fluid. The kidney was explored, but no pockets of pus discovered and no stone, the wound was sutured and a large drainage tube introduced. The patient recovered well from the operation, but secreted no more urine, rapidly became uræmic, and died two days later. Of course, when the condition of the incised kidney was seen it was supposed that the wrong kidney had been cut down on; however, a post-mortem examination revealed a similar condition of the left kidney.

Dr. Johnston made the post-mortem examination and his report is as follows:

"Autopsy, twelve hours after death. A very strong urinous ammoniacal odor noticed about the body, which was well nourished. Abdomen only examined. The kidneys did not project below the level of the last rib. Both ureters distended to almost the size of forefinger. The kidneys on both sides showed marked hydronephrosis with dilated pelves and calices, papillæ flattened. Renal substance atrophied and microscopically showed extensive cirrhotic changes, but was free from any appearance of true inflammation. The pelves and ureters contained opaque purulent looking fluid, but the mucosa nowhere eroded. Bladder contained about ten ounces of dark urine and pus was sacculated behind prostate and the middle lobe was enlarged but soft. Muscular coat of bladder much thickened and trabeculæ prominent, the mucosa, on the contrary, was very thin and atrophied and showed deep-seated pigmentation."

Dr. Johnston, in commenting on this case, said the most interesting symptom was the presence of what appeared to be pus in the urine—that is, a dense cellular deposit not accompanied by much mucus. This had always been given as a sign by which suppuration of the kidney could be distinguished from catarrh of the bladder and in this case had materially influenced the diagnosis. Here, however, there was no true pus present in the sense of a product of suppuration accompanied by necrosis. The anomaly was probably explained by the condition of the bladder mucosa which showed a marked atrophy; in most cases of cystitis following prostatic obstruction the bladder mucosa is greatly thickened. This atrophic mucous membrane being unable to secrete any considerable amount of mucin had made the appearance of the urinary deposit very misleading. The absence of mucus was the reason why the urine was not foul.

Dr. Shepherd said he had now no doubt that the case was originally one of enlarged middle lobe of the prostate followed by secondary changes in the ureters and kidneys the result of obstruction. Still, he thought the case a very obscure one and one in which the diagnosis of calculous pyelitis was justifiable both from the history and symptoms. Dr. Johnston had explained the reason of the absence of mucus and the cause of the urine remaining sweet, but the deposit was so large in amount that it must have proceeded from the whole urinary tract and not from the bladder only.

Dr. Kennedy read a paper on a case of

DIABETES

in which a daily analysis of the urine had been made from October, 1886, to August, 1887. The patient was a female, aged twenty-eight years. Tables were shown recording the daily quantity of urine, the specific gravity, amount of sugar, urea, and amount of fluid and food taken. At the commencement of the treatment the average daily amount of sugar was seven ounces. Codeia was first given with benefit, but lost its effect during the second week, when the patient's condition became serious. On December 10, 1886, nitro-glycerine was given and continued with slight intermissions for five months; its action was markedly beneficial, for the patient's condition steadily improved.

So far as Dr. Kennedy was aware, this was the first time the remedy had been used in diabetes. Jambol was given for a short time as an additional remedy, but not continued. Iron, strychnine, etc., were also given for the anæmia. A strict diabetic diet was followed with saccharine as a sweetening agent. In July, 1887, no medicine was given as the patient was almost well and during the last week of the present month (January, 1888) the patient's condition was normal and there was no sugar in the urine. At the present time the patient is perfectly well. During the ten months the urine was examined the patient excreted fifty-two pounds of sugar.

Dr. Ruttan said that this case deserved more than a passing notice. There was probably not another case on record in which such an accurate and thorough analysis of the urine had been made. A daily quantitative estimate of the most important constituents of a diabetic patient's urine, extending over a period of ten months, should reveal something of interest. It was important to note the fact that whenever there was a sudden decrease in the percentage of sugar there was an increase in the acetone group of excreta and this was accompanied by the most alarming symptoms. Whether there was any relation between the quantity of sugar and acetyl-acetic acid excreted has not been determined, but there are few who believe that the symptoms of diabetes are due to the sugar or want of proper assimilation of carbohydrates. If these acetone products do not of themselves produce the toxic symptoms and coma of diabetes, their appearance during and preceding coma is a remarkably common coincidence. In a recent case of sudden diabetic coma Dr. Ruttan had examined the urine, found it a trifle pale and with no acetone odor when fresh. Sp. gr. 1020; only 2.7 per cent of sugar, but the acidity was equal to $\frac{27}{100}$ of a grain of oxalic acid per ounce, and it was loaded with acetyl-acetic acid. In another case recently examined by the speaker, for life insurance, no sugar reaction was obtained by Fehling's solution, but the acetone reaction was marked. Sp. gr. normal. Two days later this patient's urine gave 3 per cent. of sugar and no acetone. Sp. gr. 1028. The specific gravity of diabetic urine is no index to the quantity of sugar, nor, indeed, if acetone be found, is it in relation to the total solids, for the acetone and alcohol resulting from the decomposition of acetyl-acetic ether will greatly lower the specific gravity. Dr. Ruttan, in conclusion, stated that no work of much clinical interest could be done in connection with acetonæmia or diacetonæmia until a more convenient method of isolating acetone is found than that recommended by Salkowski.

Dr. T. Wesley Mills said that the elaborate daily analysis of the urine in Dr. Kennedy's case could not but prove of value. We have much to learn yet about diabetes. Why should irritation of the fourth ventricle produce sugar? He was not himself satisfied with the present condition of our knowledge of the medulla, and doubted much whether it has all the centres that are attributed to it. It seemed to him that when we do not know where to put a centre we place it in the medulla. He hoped Dr. Kennedy would publish the tables of his analysis of the urine in full.

NEWS ITEMS.

The Crown Prince.—The *British Medical Journal* of February 4th states that the slough which came away on January 17th, from the site of the growth which excited so much alarm in November, was more than three-quarters of an inch long. The raw surface left by the separation of this piece of disorganized tissue has now almost entirely healed, and the condition of the neighboring parts is highly satisfactory. There is, however, some thickening about the right side of the larynx; and though the present appearances seem almost to negative the theory that the disease is malignant, a dangerous amount of narrowing of the breath-way may be caused by simple inflammatory swelling. Under these circumstances it is thought not improbable by the physicians in charge of the case that tracheotomy may become necessary, possibly at no very distant date. This contingency, however, while requiring to be kept in view, need not cause any special anxiety as to the prolongation of the life of the illustrious patient.

As is well known, the tracheotomy, which was foreshadowed in the above article, has since been performed.

In reference to the pathological character of the slough from the site of the growth, the *Lancet* states, on the authority of the *Vorsiche Zeitung*, that Professor Virchow, after the most careful and minute investigation, is unable to discover in the portion submitted to him anything of a really serious character.

Sanitary School Reform.—The Commissioners of Public Schools of Baltimore, Md., have taken the initiative in the introduction into the public schools of that city of a series of reforms which, if adopted, will be of great benefit to the pupils. This action is the more noteworthy from having originated in the School Board, the proposition coming from its Committee on Health, and not being forced upon it by the Board of Health or public opinion. It is greatly to be hoped that the Mayor and Common Council of the city will give the necessary power and money to carry these resolutions into effect. After a preamble to the effect that sanitarians and teachers have proven that children attending school are frequently subjected to influences prejudicial to health, which often leave their effects upon the constitution for life, and that it has been demonstrated, that, by expert sanitary supervision of schoolhouses and of the pupils themselves, many of these injurious influences can be mitigated and removed, the resolutions are, that the Mayor and City Council be requested to authorize the Commissioners of Public Schools to appoint an officer, who shall be a physician and expert in sanitary science, to be known as the Sani-

tary Superintendent of Public Schools, whose duty shall be, 1st, to examine carefully all plans submitted for the construction of new schoolhouses, and suggest such modifications as may be necessary from a sanitary point of view; 2d, to advise with the Commissioners with reference to necessary alterations in school buildings to improve their hygienic condition; 3d, to examine all textbooks before adoption, in order that type, printing, or paper injurious to the eyesight of pupils may be avoided in selecting such books; 4th, to satisfy himself, by personal examination, if necessary, that all pupils admitted to the schools have been properly vaccinated or are otherwise protected against smallpox; 5th, to take such other measures, in conjunction with the Health Commissioners of the city, as may be necessary to prevent the spread of contagious diseases in, or through the medium of the public schools; 6th, to examine annually the eyesight of all children attending the public schools, and keep an accurate record of such examinations; 7th, to report annually, or as often as may be required by the Commissioners, upon the sanitary condition of the schools, and of the pupils attending them, and to advise the Commissioners upon sanitary questions connected with schools whenever required; 8th, to give instruction, by lectures or otherwise, to the teachers in the schools upon the elementary principles of school hygiene.—*Science*, February 3, 1888.

The Electric Light for Reading Rooms.—In the annual report for 1887 the "Stadtphysicus" of Prague, Dr. Zahor, urges the introduction of electric lighting into the public reading rooms. He states that Dr. Fr. Renk, assistant to Professor Pettenkofer, has had the opportunity of making a series of experiments on the utility of the electric light from the sanitary standpoint, in the "Nationaltheatre" of Munich, which is supplied with 1700 Edison lights. He has thus been able to prove that the electric light had hardly any influence on the deterioration of the air, whereas the gaslight raised the temperature of the room, deprived the air of its oxygen, and rendered it injurious by increasing the carbonic acid, especially in the higher regions. It could also be easily imagined that the elevation of temperature produced by the gaslight, the increase of the carbonic acid, and the diminution of the oxygen in the air reached a much higher degree in confined working rooms than in a spacious, well-ventilated theatre. Considering that when the electric light was used such an increase of the local temperature could never take place as when gaslight was employed, and that in the latter case headaches referred to those parts of the head which were directly exposed to the influence of the rays of light, neuralgias, and local hyperæmias supervened; furthermore, that no carbonic acid was developed, and that no oxygen was consumed by the electric light; and lastly, that, although the electric light was very powerful, its intensity could be diminished by shades—it became evident that the more general adoption of the electric light would be very advantageous from the hygienic point of view.—*British Medical Journal*, January 28, 1888.

A Series of Evening Lectures on special subjects will be given by the faculty of the Philadelphia Polyclinic at the college building, Broad and Lombard Streets. Dr. Leffmann will open the course on the 28th inst., subject: *Office Testing of Urine*. Members of the profession are invited to attend.

The Extermination of Rabbits.—The *British Medical Journal* writes that M. Pasteur's plan of exterminating rabbits by the spread of fowl cholera has been tried in a walled field near Rheims, where both gun and ferret had proved ineffectual. M. Loir, nephew of M. Pasteur, went down and poured on a truss of hay some broth full of the microbes of chicken cholera. The next day nineteen dead rabbits were found, and two days later twelve more. In some of the burrows were discovered families of dead rabbits, and not one living rabbit has since been seen.

A Polish Medical Congress will be held in May, 1888, at Lemberg.

New Teachers at Vienna.—The following *Docenten* have recently been appointed: Drs. Neusser (Medicine); Hochstetter (Anatomy); Kolisko and Paltauf (Pathological Anatomy); Ehrmann (Dermatology and Syphilis); v. Hacker (Surgery); Unger and Frühwald (Diseases of Children).

An Itinerant Dispensary.—An itinerant clinic or dispensary has been established in Roumania under the direction of Dr. Bejan, of Bucharest. During last summer, itinerations were made in two districts in which there is a great scarcity of doctors, and no less than 9000 patients were treated.

Professor Senator has been appointed Director of the Medical Department of the Berlin University Polyclinic.

Another New Anæsthetic.—The *Medical Press and Circular* of January 25, 1888, reports that Dr. Lewin, having been commissioned to examine a new arrow poison forwarded by Messrs. T. Christy & Co., reports that it is a powerfully toxic agent when injected subcutaneously, even in quantities of $\frac{1}{300}$th grain. It also possesses marked anæsthetic properties when applied to the cornea, but its use was followed by some irritation. A careful examination of the substance has enabled him to identify it with the *Haya* arrow poison, obtained from the *Erythrophlæum judiciale*, which, when pure, produces insensibility of the cornea without irritation.

A Generous Transfuser.—The *British Medical Journal* reports that on January 13th, Dr. Eustace, a young practitioner at Alresford, Hants, was summoned at midnight, and found his patient suffering from uterine hemorrhage. This he stopped, but in the morning the patient was almost pulseless and sinking fast. Dr. Eustace, with no one to help him but an old woman, opened a vein in his arm and tried direct transfusion, but lost a quantity of blood, so, allowing over six ounces of blood to drop into a basin, he injected it with a syringe, with the result that the patient after a week had recovered.

Electric Sunstroke.—The Paris correspondent of the *Medical Press and Circular* of January 18, 1888, writes that at a recent meeting of the Academy of Medicine M. Terrier read a paper on "electric sunstroke" observed in some workmen at the great foundry of the Creusot, who

smelt steel by electricity. The neck, face, and arms of the men became red and painful, and, finally, desquamation took place as witnessed in burns of the first degree. M. Terrier said that he exposed his arm during a few minutes to the action of the incandescent electric light and at the end of an hour the arm assumed an intense redness, which, at the end of four days, gave place to the ordinary desquamation. As to the cause of these symptoms he considered it difficult to determine, as heat could not produce them since electricity emits hardly any caloric.

Women Pharmacists in Italy.—There is a dearth of pharmacists in the rural districts of Italy. The Minister of the Interior recommends that women be given opportunity to study and practise pharmacy, although he would not go so far as to allow them to receive the degree of pharmaceutical chemist. That will come, however, in due time.—*Exchange.*

French Toilet Articles. — The *American Druggist* for January, 1888, writes that in a report submitted to the Hygienic Council of Paris by Drs. Dubrisay and Chafin, the authors state that the perfumery and toilet products now sold contain so many noxious substances that it is desirable the factories should be placed under special surveillance. They give a number of instances in support of their statement. The so-called "harmless and purely vegetable" hair dyes, they say, are all poisonous. "Progressive dyes" are ammoniacal solutions of nitrate of silver. The "instantaneous dyes" are a solution of litharge in lime water. "Eau des Fées" is a solution of sulphate of lead in hyposulphite of soda. "Eau Figaro" consists of three solutions (1) of nitrate of silver and sulphate of copper; (2) sulphide of sodium; (3) cyanide of potassium (to remove the silver stains). "Eau des Fleurs" is composed of rose water, 95.5; flowers of sulphur 2.7; acetate of lead, 2.8. Passing to cosmetics, they say "Lait antipellique" is composed of corrosive sublimate, 1.7; oxide of lead, 4.22; sulphuric acid and camphor. "Lait de manille" is a mixture of borax, copper, tincture of benzoin, and essence of bitter almonds; "Lait de Ninon," of bismuth and zinc; "Eau Magique," oxide of lead and hyposulphite of zinc; "Eau de fleur de lys," protochloride of mercury; "Eau royal de Windsor," glycerin and oxide of lead; "Eau de Castille," hyposulphite of soda and acetate of lead. The "Poudre Pilivore de Laforet" contains mercury (?), 60 grs.; sulphide of arsenic, 30 grs.; litharge, 30 grs., and starch, 30 grs. "Epiteine" is simply sulphite of calcium, and "Antiboldos" hyposulphite of soda. Pomades against baldness all contain cantharides and croton oil.

Permanganate of Potassium in Toothache.—In the *Russkaia Meditzina*, No. 19, 1887, p. 330, Dr. Prokopy Popoff, of Minüsinsk, in "Siberian Switzerland," writes that he has most successfully treated upward of three hundred cases of toothache from dental caries by administering one-twentieth per cent. solution of permanganate of potassium in the form of a mouth wash. The following is the formula: R.—Potass. permang., 3 grains; aq. destil. or fontanæ, 1 (Russ.) fl. pound.—Misc. One tablespoonful to be taken in the mouth, every half hour, and to be held therein on the affected side for several minutes. The most agonizing pain is said gradually to disappear in a few hours. The wash acts, besides, as an excellent deodorizer.—*British Medical Journal*, January 7, 1888.

A Terrible Suicide.—The *British Medical Journal* reports that in the case of Rear-Admiral Verstrume, who died by his own hand at Falmouth, the deceased was found to have thrust a red-hot poker three or four times into his abdomen.

A Hygienic Kitchen.—In an article in the *Popular Science News* for January, 1888, Dr. Crowell describes a healthful kitchen as follows:

The kitchen should receive special attention, for it is here where the important work of the household is done. And yet how often is this apartment neglected in the plan of the house, and crowded away in some angle, small, dark, and inconvenient. A kitchen should be at least fourteen feet square, with ample arrangements for range, sink, and other culinary appliances. The sink should be thoroughly trapped, the water that supplies the tank should *not* come from the cistern that feeds the water-closets, and the drip-pipe of the refrigerator should not enter the general sewer. The backs of sinks and wash-tubs should be protected with high soapstone slabs, to prevent the accumulation of moisture and filth; and care should be taken that no waste material finds lodgement in any of the crevices or traps. Open plumbing should be observed, and no place should be found under sinks for mops or rubbish. The floor should be solid and seamless, with grooved edges where it joins the mopboard. This concave line prevents the accumulation of dust and vermin, and greatly facilitates the process of cleaning the floor.

To Cool Water Without Ice.—Where ice cannot be procured, water may be cooled by wrapping the pitcher containing it in a towel of loose texture which has been previously impregnated with ammonium nitrate (*and dried*) and moistening this with water. The same towel may be used repeatedly, being dried thoroughly beforehand each time.—*Pharmaceutical Era.*

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM FEBRUARY 7 TO FEBRUARY 13, 1888.

JANEWAY, JOHN H., *Major and Surgeon.*—Detailed as a member of the Army Retiring Board in San Francisco, Cal., covered by S. O. 168, A. G. O., July 22, 1886.—*S. O. 28, A. G. O.*, February 4, 1888.

HOPKINS, WILLIAM E., *Captain and Assistant Surgeon.*—Detailed as a member of the Army Retiring Board in San Francisco, Cal., covered by S. O. 168, A. G. O., July 22, 1886.—*S. O. 28, A. G. O.*, February 4, 1888.

JARVIS, NATHAN S., *First Lieutenant and Assistant Surgeon.*—Ordered from Fort Lewis, Colorado, to Fort Leavensworth, Kansas.—*S. O. 30, A. G. O.*, February 7, 1888.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

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ORIGINAL LECTURES.

EXTRACTION OF CATARACT WITHOUT AN IRIDECTOMY.

A Clinical Lecture delivered at the Garfield Hospital, before the Post-graduate School of Ophthalmology.

BY SWAN M. BURNETT, M.D.,

PROFESSOR OF OPHTHALMOLOGY AND OTOLOGY IN THE UNIVERSITY OF GEORGETOWN; OPHTHALMIC AND AURAL SURGEON TO THE GARFIELD HOSPITAL, AND DIRECTOR OF THE EYE AND EAR CLINIC AT THE CENTRAL DISPENSARY, WASHINGTON, D. C.

GENTLEMEN: That wise man and emperor, Marcus Aurelius, found out, nearly nineteen hundred years ago, that the "World is only change and life only opinion." The experience of the succeeding centuries has in no way invalidated the truth of this observation, whether as applied to life in general or to things in particular. Change is the order of to-day, as it always has been, and always will be until a stable equilibrium is reached between man and his environment. Certainly, in the art of medicine, this is too apparently true to need any argument for its substantiation. The only point then that should interest us, as practitioners of this art, is whether proposed changes are in the direction of progress or retrogression. Certainly, all change is not progress, and yet it cannot be doubted that most changes in medicine are associated with a loss of some error, or the further elucidation of some hitherto obscure truth.

Ophthalmic surgery, like all other arts, and particularly the arts based on scientific knowledge, has had its periods of activity and repose. Anything like a complete survey of these changes is, however, beyond the range of the purpose of this lecture, the object of our particular interest at this time being the present status of the operation for the extraction of cataract. From the time of Daviel's grand achievement to the present, there has been only one marked innovation in the methods of extracting cataracts. Up to v. Gräfe's time extractions were made, whether by instruments or otherwise, through a corneal incision made by a triangular-shaped knife. Occasionally a bold spirit would make some slight deviation from the established procedure, but the encouragement he received was scant, and at the period when the genius of v. Gräfe was thrown on the world, the "flap" extraction through an intact pupil had become classical. When we consider the tremendous superiority of the results obtained by this method over those following reclination, it is no wonder that there was an indisposition to change, and a general feeling of content with "well enough."

All the factors leading to this marked change in the method of extraction may not be altogether clear now, but that it followed in the train of the prevailing opinions of the period, is quite certain. No innovation so radical as this ever comes about suddenly. It may come as a climax, but its antecedent accumulating causes are usually not far to seek. The association of iridectomy with cataract extraction, was most probably the outcome of v. Gräfe's experience in the therapeutic value of excision of a piece of the iris in glaucoma and other morbid conditions of the eye. He adopted it as a part of his method in order to forestall certain complications and ill results which had hitherto lain in the way of the best results. At that time iridectomy had achieved such marvellous success in glaucoma, and its application was pushed into so many and such diverse fields of therapeutics, that there was danger of oculists becoming simply iridectomists. One eminent London surgeon, it was said, thought it a dull day when he made less than half a dozen iridectomies in his private practice alone.

But a truly great mind like v. Gräfe's would not be led away by a mere fashion, and particularly by one which he had himself instituted. He had, undoubtedly, the prophylactic power of iridectomy in view when he adopted it as a part of his method, but there were other reasons inherent in the method itself which rendered it apparently necessary. The extreme peripheral position of the incision, which he adopted for the purpose of making it as nearly linear as possible, and to lessen the chances of corneal suppuration which was the cause of the loss of so many eyes in the old flap method, made a prolapse of the iris almost a matter of course. This, and the evil consequences which would almost surely follow, could be avoided only by making an excision of the iris, corresponding in extent, or nearly so, with the corneal incision.

The extremely satisfactory results of this "peripheric linear method" as v. Gräfe called it, together with the great weight of authority of its originator, established it as firmly among operators as the old flap method had been, and within a very few years after the method became known, the operation without an iridectomy was done only by one or two very conservative surgeons, always to be found, who believe that old ways are best. But, in spite of all this, the world of ophthalmology still continued to move—almost imperceptibly, it is true, but yet sufficiently for a careful observer to note, that after a certain number of years the "Gräfe" operation was not exactly the same to all men, and, in fact, in course of time the typical "Gräfe" was done by but a limited number of his disciples. First of all, the section was shifted a little more forward, and ceased to be strictly peripheral. This was done because some cases of sympathetic ophthalmitis were reported, which seemed to depend upon the injury to the ciliary region in the operated eye. And then again, prolapse of vitreous was much easier with a wound almost wholly scleral. The incision being then brought wholly, or almost so, in the cornea, ceased to be "linear," and thus the name the author had given to it could no longer be considered as accurately descriptive. But still the iridectomy remained, and for many years that and the narrow knife were all that could be truth-

fully said to remain of the "Gräfe" method of extraction.

It is not to be supposed, however, that the whole ophthalmological world bowed the knee to v. Gräfe and accepted the operation as it left his hands. One of his own pupils—Liebreich—devised a downward section situated wholly in the cornea, and extracted without an iridectomy; and the "Brussels" operation was very similar, the incision being made upward and curvilinear in form. The late Mr. Critchett, of London, was in the habit of doing the "Brussels" quite frequently when I was at Moorfields, twelve years ago. There are some others who made tentative efforts in the same general direction, but it was de Wecker, of Paris, who with his characteristic energy and enthusiasm, first tried the new method on an extensive scale. I think there is a diposition in certain quarters to give to others the credit which is really due to de Wecker as the pioneer in the operation which is now coming rapidly to the fore. I remember when I was following his clinic in 1875 and '76 he was doing essentially the same operation as is now being done, and was striving earnestly to impress its value on the profession. Speaking to me one day about it, he said, "They take to my iritomy, but"—with a sad shake of the head—"they will not accept my method of cataract extraction."

It must be a source of considerable satisfaction to him to know that the profession has, at last, accepted it, at least for trial, and that many of our best operators now say they will never make an iridectomy again, except in particular cases. He himself does not do it in all cases, but for the common, uncomplicated senile cataract his "extraction simple" is the operation which in the near future will undoubtedly be the rule, and will remain so until something better is devised. Of course, the ideal extraction is with the lens in its capsule and without an iridectomy, and we shall not despair of its final realization, but, for the present, we must content ourselves with progress in that direction.

It is an interesting and instructive inquiry as to the causes that have led to a final adoption of this "simple extraction." As I stated before, one of the principal reasons which led v. Gräfe to make the iridectomy was the danger of prolapse of the iris, and with the extreme peripheral section he employed, this was unavoidable. But when the section was moved farther forward, it was found that the iris could, by a little coaxing, be made to return, after the lens had been pressed through the pupil, and frequently with no tendency to prolapse. The introduction of eserine, the active principle of the calabar bean, also assisted, in so far as the contraction of the pupil which it causes, renders a prolapse more difficult—at least it is supposed so by many, and the first operations without an iridectomy were all accompanied by instillations of a solution of eserine. It was also found that the incision at the corneal margin was not more likely to be followed by suppuration than when it was scleral, while the dangers of cyclitis and of sympathetic ophthalmia were materially lessened. It is true, prolapse of the iris would take place sometimes in spite of the best precautions and the greatest care, and posterior synechiæ were by no means infrequent, but yet the majority of the patients recovered with round pupils, and in many instances with movable ones. Still, as we have said, the innovation made no great headway; the conservatives were satisfied with things as they were, and a large coloboma of the iris was not to them a matter of much consequence, so long as their patients saw well.

I, am, gentlemen, not an advocate or defender of rashness or unwarrantable boldness, but I think the self-styled conservative is, usually, the man who waits for somebody else to tell him what to do and the best way of doing it. These conservatives are afraid of iritis and synechia, forgetful that in only a very limited number of cases did the iridectomy prevent the occurrence of iritis in some degree, and ignoring the fact that in nearly every case the stump of the excised iris was entangled in the corneal wound even when the pupillary edge remained free, which it did not always do, by any means.

There was no great overpowering name, like that of v. Gräfe, to bolster it up, and the fact that the operation without iridectomy was revived in France would not materially hasten its adoption in Germany,[1] and in these days the stamp of German authority is quite necessary for matters ophthalmological. But de Wecker's persistency finally had an effect, and gradually the "extraction simple" began to be tried in selected cases by first one and then another, until now it is the question when one oculist meets another, "Are you doing extraction without an iridectomy, and how do you like it?" And the reply almost universally is, "Yes, I have done it in a few cases and I rather like it, and shall try it in more." When in New York this winter I found all the prominent men doing it, and, on the whole, they were very well satisfied with the results, and I have no doubt we shall hear from them, in print, to that effect soon.

The question also came up for discussion at the late International Congress, held in Washington last September, and there was a free interchange of opinion as to its merits. Of the Frenchmen present, all but Landolt did the operation as a rule. Mooren, of course, advocated his own plan of a preliminary iridectomy, while Mr. Henry Power, of London, said that he thought he should never, except in extraordinary cases, do an iridectomy again.

My own judgment in the matter is that in the good cases the results are better, and in the bad cases they are no worse than when an iridectomy is performed. Prolapse of the iris is, in my opinion, not any worse than the incarceration of the stump of the excised iris in the wound. Iritis is not any more frequent, according to my experience, than when an iridectomy is made.

As to visual acuteness, we have not had a sufficient number of cases to compare results, but, on general principles, it must be conceded that a round central movable pupil is optically better than a large coloboma. Neither should the question of appearance be ignored. Our patients have the right to expect of us the best results with the least possible amount of disfigurement; and one of the reasons de Wecker is said to have given for cultivating this method is that his clientele was so keenly sensitive to the æsthetic features of the question that he felt that he must get rid of the regulation mutilation of the iris.

But, after all, I think it may be said that one of the most

[1] It is only just to say that this statement is not applicable to all Germans. Prof. Schweigger, of Berlin—v. Gräfe's successor—does the operation, and is a strong advocate of it in proper cases, and his influence will undoubtedly be great in establishing it in Germany.

powerful promotors of the operation was the introduction of cocaine as a local anæsthetic. It is well known that the application of the cocaine solution to the outside of the eyeball acts but feebly on the iris, even when the solution is a strong one and is applied for some length of time; and even when the solution is applied directly to the iris there is not always a sufficient anæsthesia to make its section absolutely painless, though some contend that they have uniformly succeeded. Without an iridectomy the operation under cocaine is perfectly painless, and we can so assure our timid patients, and this assurance as to its being nearly painless allows them to submit more readily to an operation, renders them quieter under its performance, and, undoubtedly, by this quietude of mind conduces to a better final result.

It is not claimed that it is a method that is adapted to all cases. There are certain cases in which an iridectomy is to be preferred as being safer. I do not consider, however, that a large nucleus is a contraindication. I have extracted a brown cataract which was nearly all nucleus through an intact pupil with excellent results, and one Morgagnian cataract in which the small nucleus was floating in a liquefied corticalis, turned out most beautifully. So far I have found but three classes of cases in which I have considered it unsafe to dispense with an iridectomy, and these are the instances where there is a great deal of soft corticalis, or the cataract is immature and where the pupil is rigid, or where there is a tendency to glaucoma. There are some operators, however, I believe who do not make an exception even in such cases as these.

As to the *technique* of the operation, it is essentially the same for all operators who are at present doing it, though there are special features of detail peculiar to some. As a rule, the narrow Gräfe knife is used, though some prefer a modification of the old triangular Beer's knife. Most of you have seen me do the operation a number of times in this hospital, but it may be well to go over again connectedly the various steps of the method as at present followed by us.

As you see, all our operations are done in the open wards of the general hospital. We have no dark rooms or dungeons, but plenty of light and air, and whatever cheerfulness may come from the presence of others in the same room and moving about, which, in my opinion, is not inconsiderable. The patient is given a bath and put in the bed in which he is to remain. All our operations are done under aseptic conditions. The brow, eyelids, and face are carefully washed with a weak solution of carbolic acid, particular attention being given to the cleansing of the edges of the lids and the roots of the eyelashes, for this is a favorite hiding-place for noxious germs. The eye is then anæsthetized with a four per cent. cocaine solution, and the globe flooded with a solution of corrosive sublimate 1 to 5000. Great care is given to the thorough cleansing of the upper and lower conjunctival *cul-de-sacs*, by injecting the solution a number of times under the lids by means of a pipette. My own hands and those of the assistants are washed thoroughly in soap and water, and afterward dipped in an antiseptic solution of the sublimate or carbolic acid.

It is rare now that I use a blepharostat or speculum for holding the lids apart in doing this operation, though when I make a combined iridectomy I do.

The assistant holds up the upper lid by carefully applying his fingers to the edge of the lid and drawing it back on the ball, while with the fixation-forceps I draw the globe down and hold it firmly. I then take a Gräfe knife and make a section, detaching the cornea for about its upper third from the sclera. The puncture and counter-puncture are made just at the limbus—that is, at junction of the cornea with the sclera, and the attempt is always made to keep the section strictly in the limbus throughout its whole extent. This, however, is not always possible, for often there is a tendency of the iris to fall in front of the knife and in order to avoid cutting it the edge must be directed forward and as a result the apex of the section will lie to a greater or less extent in the clear cornea. I have not found, however, that this makes any material difference in the course of healing. The best results are, however, obtained when the section lies altogether in the limbus, and a small conjunctival flap is undoubtedly an advantage in conducing to a more speedy and firmer healing of the wound.

The section being completed, the anterior capsule of the lens is lacerated by a cystitome. This laceration of the capsule is done by some operators with the point of the knife in its passage through the anterior chamber from the puncture to the counter-puncture. I have tried it, but am better satisfied with the cystitome. In this operation almost everything depends upon the accuracy of the section, and it is important that the puncture and counter-puncture lie in the same plane perpendicular to the corneal axis, and to those who have never tried it, it is difficult to imagine how hard it is to estimate justly the exact position of the point of a knife when seen through the highly refracting cornea. It is much safer and easier to start the knife in a certain plane at the puncture and keep it up to the counter-puncture. When the anterior capsule is well lacerated a hard rubber spoon, which has been lying in an antiseptic solution of sublimate, is applied to the lower scleral margin and pressure is made backward and slightly upward causing the lens to rotate on its horizontal axis. Its upper edge, covered with the iris, then presents itself at the gaping wound, and a continuance of the pressure causes it to slip through the distended pupil and escape. This manœuvre is sometimes executed by making the pressure with the lower lid against the globe by means of the finger.

When the lens has been delivered, the lids are closed for a few moments to allow of an accumulation of some aqueous and to permit of a return of the prolapsed iris, which latter can be assisted by some slight rotary rubbing over the closed lid. When the lids are again opened it is frequently found that the iris has completely returned and the pupil is round and central. If it is black and there is no considerable amount of soft cortical matter remaining in the anterior chamber, the edges of the wound are closely inspected to see if they are clean and in apposition, and if they are found so, the eye is flooded again with the sublimate solution, the lids closed, a bit of thin cloth saturated with an antiseptic solution laid over them, the orbital cavity filled out with absorbent cotton and a light, four-tailed bandage applied over both eyes.

We have not adopted the new fashion, or rather the revived fashion of simply closing the lids with isinglass plaster. We think the light bandage more comfortable and safer. The bandage is removed at the end of twenty-four hours and the outer surface of the lids inspected, but the eye is not opened. This dressing is done simply for

the comfort of the patient. No possible good can come from an inspection of the eye itself. The wound is easily ruptured, even by the movements of the eye itself, when there will be a gush of aqueous and a prolapse of iris. If there is no great swelling of the lids it is only at the end of the third day that I gently pull down the lower lid and examine the condition of the conjunctiva, and usually put in a drop of atropine solution. If there is evidence of iritis or other serious inflammation sooner, as shown by great swelling of the lids and pain, the eye is opened at once and the difficulty treated vigorously by atropine, heat, anodynes, etc., and in case of suppuration of the wound by strong antisepsis.

There are a number of cases, however, in which the operation is not so ideal and simple as that just described. The iris does not return on accumulation of the aqueous, and when the lids are opened it is found lying in the wound. An attempt is then made to replace it. This is done by drawing a Bowman's probe, thoroughly aseptic, through the wound, the iris before it. And still the pupil may not become round, but remain oval. A rubbing on the outer surface of the closed lid will sometimes bring about the desired result. If not, then the effect of eserine should be tried. I find that many operators are afraid of eserine, thinking that it is liable to lead to iritis, and my own impression is that their fears are well founded and I never use eserine for assisting in a return of the iris when it can be avoided. If, in spite of all efforts, the iris refuses to remain, or, if it has been cut during the corneal section, the only thing to do is to excise it. And one of the claims of superiority of this operation is that the iridectomy can be done after the expulsion of the lens, if found necessary, as easily as before. As to washing soft corticalis out of the anterior chamber, I think it can be done often with impunity, but I believe too much meddling is not to be encouraged. It is done, however, by many good operators and it is perfectly true that under aseptic conditions we can do a great many things without fear which before we would not have dared to do.

We have done in this hospital, up to this time, twenty-four of these extractions without an iridectomy, and the general result has been so satisfactory that we deem ourselves committed to the operation until something better is offered. Only one eye has been lost, and that loss could not be, in justice, attributed to the operation. It was one of those cases which humble the pride of an operator and make him despair of obtaining absolute perfection in cataract extraction. The operation was perfectly smooth and thoroughly *secundem artem* and under the strictest aseptic precautions, and yet the whole cornea was lost through purulent inflammation which set in on the second day after the operation. In one other case there was closure of the pupil through iritis, which, however, can be improved by operation. In all the other cases the results were good.

ORIGINAL ARTICLES.

GLYCERINE ENEMATA IN INTESTINAL OBSTRUCTION.

By EDWARD R. MAYER, M.D.,
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Having noticed in The Medical News of January 28, 1888, an abstract of Dr. Althaus's article upon the treatment of habitual constipation by enemata of from half a drachm to a drachm of glycerine, I have adopted this simple plan in a number of cases, with general, if not with uniform success. It is a matter for surprise that no one had stumbled upon this expedient before.

In some instances I have substituted for the injection, the use of suppositories containing small quantities of glycerine, employing either conical gelloid capsules or the hollow suppositories of cocoa butter; occasionally, in adults, applying in succession two of the latter, when the single vehicle was not of sufficient capacity to contain a drachm of the agent. When the gelatine capsules were used several times, a slight amount of rectal irritation ensued. This did not occur after the insertion of the hollow suppositories, and with but one exception, the treatment resulted painlessly and agreeably in a more or less copious alvine evacuation within a half hour.

In one case, in which painful internal hemorrhoids coexisted with obstinate constipation, the enemata, continued daily during four days, not only produced more satisfactory evacuations than had been caused by the compound liquorice powder, but seemed so to lessen the hemorrhoidal hypertrophy and distress, that the patient considered himself more relieved by this means than he had been by a week's use of an ointment of iodol, cocaine, and extract of ergot, applied through a pile syringe.

But it is mainly to a different and extended use of this method that I now desire to call attention, believing that by this there is opened up to us a new therapeutic resource, which may become of inestimable value in certain cases in which our armament has hitherto been defective, as it unquestionably was in that which I am about to narrate.

Miss M., æt. sixty, long and safely past the menopause, of very vigorous constitution and prudent life, never the subject of any gastric, hepatic, or intestinal derangements, after an unusual exposure to low temperature and cold winds, was attacked in the night of February 1, 1888, with very acute and intense abdominal pains which seemed to radiate from the umbilical region. These were attended by slight but continuous rigors. To relieve these pains, she took in rapid succession the remedies she had at hand, a teaspoonful of Squibb's cholera mixture and six granules of morphia and atropia, each containing one-eighth grain of morphia and one-hundredth of atropia. When called upon to see her early in the morning of February 2d, I found her still suffering extremely, with a tympanitic abdomen, a very anxious expression, her face, however, flushed by the atropia, considerable nausea, a wiry pulse of 120, and a temperature of 102.5°. A hypodermatic injection of thirteen minims of an equivalent of Magendie's solution, was followed by complete relief from pain and by temporary cessation of nausea. After this, throughout the illness, the patient had no return of the lancinating and agonizing pains which

characterized its inception, while suffering throughout, from extreme abdominal soreness and tenderness. Hot turpentine stupes were now applied, and ten grains of antipyrin administered hypodermatically, with the effect of reducing the temperature within an hour to 100°. Minute doses of calomel and subcarbonate of bismuth were placed upon the tongue every half hour, and a quarter of a grain of cocaine hydrochlorate in a drachm of cherry laurel water, directed to be given upon the recurrence of nausea.

During the succeeding two days this plan of treatment was continued. The antipyrin was given under the skin whenever the temperature rose above 100°, and eight minims of the morphia solution injected nightly, or whenever the painful symptoms increased.

Nausea and vomiting were frequently present, but were somewhat kept in check by the injections of antipyrin and by the cocaine. No liquids, however, were retained, even iced peptonized milk with lime-water being rejected, and the patient being compelled to be content with sucking cracked ice.

As soon as the primary inflammatory symptoms seemed to abate, upon the morning of February 3d, efforts were made to relieve the tympany and constipation. These consisted in the insertion of a large flexible catheter as far up as the sigmoid flexure and of the injection through it, first of several quarts of warm saponified water, and later, at each time, a pint of an emulsion of turpentine with yolk of eggs. No relief followed the use of these; no escape of flatus occurred, and the returned enemata contained only some intestinal mucus.

In the meantime, while the pyrexia was being controlled by the occasional hypodermatics of antipyrin, the abdominal inflation was steadily and alarmingly increasing. Oppression, dyspnœa, gastric regurgitation, and slight singultus had developed, the pulse was running up and becoming more thready and uncertain, and all the symptoms indicated the dangerous condition of the patient, and threatened impending catastrophe.

The intestinal distention throughout the illness had been uniform and globular. No hernia existed, and the most careful examination made by Dr. G. W. Guthrie, who kindly gave me his counsel in this case, and by myself, had failed to elicit any evidence of appendicular disease, perityphlitis, or of indigitation or knotting of the intestines; the case being considered by us to be one of peritonitis with paralysis of the muscular coats of the bowels.

Upon the failure of terebinthinate enemata and of large injections of plain or of medicated warm water to give any relief in this case, all medicines administered by the mouth being now rejected, it occurred to me, fresh from the use with another patient of a small enema of glycerine, as recommended by Dr. Althaus, to extend and amplify his method in the now very serious condition of this patient. Accordingly, I at once proceeded to inject through a large flexible rectal tube, inserted at least seven inches, two fluidounces of warmed glycerine, with forty minims of tincture of belladonna added to it. The insertion and the injection produced no distress or immediate effect, and I left the invalid with directions to her nurse to cause the hips and knees to be elevated for a time. Upon my return after several hours, I found a greatly changed condition of affairs, comfort where there had been agony, and an anxious and pallid countenance replaced by beaming smiles and hopeful expression.

I was informed that within ten minutes after the administration of the glycerine enema, the patient felt a warm thrill and glow extending itself and permeating all through her intestines, followed by the vermicular movements which precede peristalsis, by audible and sensible displacements of gas, and finally by acute colicky pains. Within twenty minutes after the injection, there was an urgent call to stool, with the result of the escape of a large amount of flatus, and later, of a pint of semi-liquid evacuation of mingled yellow and green color, with some small scybalæ and a very pronounced odor. This evacuation was succeeded in an hour by another of a similar character. Considerable tympanites and tenderness still existed, but the abdominal distention was decidedly reduced, and the distress greatly relieved. The temperature, which had been kept depressed to about 100° by the antipyrin, soon fell to 99°, and the thready, jerking pulse of 120, had descended to 100, and the next day was not above 90, becoming rapidly soft and full. The nausea abated, and in a few hours disappeared and did not return.

Enemata of warmed glycerine to the extent of two ounces each, without the belladonna, which did not seem to have been a factor in the beneficent action of the injection, were now administered night and morning during the next three days, each one resulting in a copious fecal evacuation, at first liquid, and then formed. The temperature varied during several days between 99° and 99.6°, the pulse soon dropped to 80, the tenderness gradually disappeared, and the distention slowly melted away. Milk punch, beef-tea, and revalenta arabica were greedily taken in small quantities, retained and digested, and upon the ninth day of the illness the patient, while feeble, was entirely convalescent, a salutary diarrhœa having set in after the enemata were discontinued, and soon ceasing. The only drug treatment employed after the symptoms improved, was a single very small dose of a saline laxative and a nightly hypodermatic of six minims of morphia solution, to secure rest.

In regard to the action of glycerine in stimulating the intestinal canal after having been brought into contact with the lower rectal mucous membrane, Anacker's explanation of the effect is that the affinity of glycerine for water, withdraws the latter from the tissues, thus causing hyperæmia and irritation of the sensitive nerves of the rectum, which in turn lead reflexly to powerful peristaltic contractions. There is doubtless a portion of truth in this view, but in such a case as I have described, there is probably a further action of the remedy for which this alone will not account.

A peculiarity of the conduct of glycerine is that its physical action, when placed in contact with mucous surfaces, is such as to enable it to overcome

and annul the physiological action of the component mucous and submucous tissues, permitting us by its use to modify these in a singular manner. I suppose that every medical man has noticed that the nasal insufflation of glycerine, or its application to the uvula, tonsils, or pharynx, is immediately followed by laryngeal distress, cough, and profuse laryngeal and pharyngeal expectoration.[1] The fact must be that partly owing to its hygroscopic affinity, so great is the extensibility and permeative power in all directions along a mucous surface, of pure glycerine, that it not only diffuses itself along and beyond the original seat of its application, but that it inhibits the natural movements of the ciliary bodies, where these exist, as in the nasal and throat cavities, projects itself in a direction the opposite of their progressive current, paralyzing their activity, and so continues to do, until exosmosis has sufficiently diluted it to prevent its further influence.

In the case which I have described, I can scarcely believe that the direct stimulation of the lower rectum by the glycerine enemata could have been so perfectly conducted to the plexus myentericus as to cause such violent dysperistalsis in the ileum and jejunum as speedily occurred in them, and I consider it probable that portions of the injected glycerine rapidly passed the sigmoid flexure and became diffused throughout the colon and possibly through some folds of the small intestine. The result of such contact would be, not immediate and direct hyperæmia of the surfaces exposed to it, but, first, anæmia of the same with irritation caused by the exosmotic withdrawal of the watery contents of the capillaries and submucous tissues, along with a rapid increase of the liquid contents of the parched intestines, and then as succeeding the shock, subsequent hyperæmia, increasing afflux of blood and vital action, with a more extended basis for reflex stimulation of the great splanchnic centres, resulting in powerful peristaltic contractions upon tubes rendered, by the presence of the then diluted glycerine, more full of liquid contents, and offering sufficient resistance to the contracting muscular coats to work upon. *Per contra*, however, it is but just that I should state what I omitted to mention, that after the established success of the first injection passed through a rectal tube, the subsequent ones were administered through a two ounce hard rubber syringe, and seemed then, the first difficulty overcome and entrance effected, to be as efficient as that which was injected higher up the rectum. But these latter injections were not followed by the intestinal thrill and glow which characterized the action of the first one used.

In using these injections, it must be borne in mind that the glycerine should be heated to at least 100°, as the remedy, when cold, cannot be readily drawn into a syringe.

If glycerine, injected by the method described, does really penetrate and permeate the upper colon or even the small intestine, it remains to be ascertained whether drugs combined with it as their vehicle, would measurably remain in the site to which they would be conveyed, or would be too completely washed away and extruded by the pouring out of large quantities of liquid and by the violent expulsive efforts of the muscular coat of the intestines to exert their specified influence. Should it be that any considerable portions of such drugs would remain *in situ*, it is manifest that an improved method of internal medication is near at hand, and that such drugs as antifebrin, antipyrin, aloin, belladonna, calomel, croton oil, colocynth, ergotin, hydrastia, hamamelin, naphthalin, physostigma, the terebinthinates, and even nitrate of silver, and some of the germicides may be introduced by an entrance into portals hitherto closed to them excepting by a devious journey through the ordinary avenues. He would be a rash man who, with our present knowledge, should attempt to sterilize typhoid bacteria by a direct attack upon the agminate glands, but stranger things than this have happened, particularly of late, in the direction of gaseous rectal medication.

[1] I have often taken advantage, successfully, of these properties of glycerine, by emptying, by pressure, upon the rima glottidis, a soft probang sponge saturated with the liquid, in cases of true croup. This treatment has frequently proved to be an efficient means of aiding in the softening and dislodgement of the false membranes, and it always provokes a very violent and explosive cough. In such cases, glycerine in the form of spray can only be employed when diluted, and so rendered incapable of attracting more liquid from the parts to which it is applied.

THE DIETETIC TREATMENT OF THE GOUTY DIATHESIS.[1]

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Before entering upon the special consideration of its dietetic treatment, it is important that we should define the gouty diathesis. We shall arrive at a clearer comprehension of its meaning, if we define the terms "gouty" and "diathesis" separately, and diathesis first.

The term diathesis, like temperament, hides more than it reveals, but it is, nevertheless, a useful exponent of the common recognition of a supposed underlying likeness of physical constitution in persons who are inclined to special and recurring aberrations from the state of health. The many and varied influences exerted by environment, food, habits, and diseases, have so modified the primitive physical condition of man as to impress upon it certain broad and well-defined derangements of

[1] Read before the Medical Society of the State of New York, Feb. 7, 1888.

normal function and structure. The tendency to exhibit these derangements is sufficiently though somewhat vaguely indicated by the term diathesis, or disposition, its literal meaning. We qualify the term according to the prevailing idea of the determining cause of the particular varieties of health disorder. Thus we speak of diatheses caused by climatic influences, by diet, by special vices or specific diseases. We observe in the victims of these diatheses certain derangements of functions and certain weaknesses or vulnerability of tissues, which may descend in families and perpetuate their likeness through generations. We may say that scarcely any one is free from these diathetic states in one form or another. There are few persons, for example, whose physical constitution has not been modified by atmospheric or telluric influences, and fewer still, probably, who have not had a more or less permanent effect produced upon their organization by ancestral or personal habits of eating and drinking. Climate and diet, indeed, may be said to be the two causes of diathetic derangements of physical health which are the most universal in their operation. Of these the one with which we are concerned is that which proceeds from the habits of eating and drinking.

By a sort of common consent the term "gouty" has been given to the principal diet diathesis. In defining this term we must ignore any allusion to the theories of gout, and simply indicate, briefly, the broad and characteristic features of the gouty diathesis as observed in the functional derangements and structural changes to which its victims are subject. Of the functional disturbances, taking them in the order of their frequency we must mention first the fermentative indigestion provoked by the carbohydrates—the sugars and starches, and their derivatives, wine and beer. This indigestion is marked by gastric acidity, flatulence, and pyrosis. Next in order of the functional derangements, and not always, nor necessarily, in connection with gastric symptoms, are those of the hepatic function, constituting what is commonly called biliousness or the lithæmic state. This manifests itself by constipation, diarrhœa, and hemorrhoidal congestion, and especially by changes in the quantity and quality of the urine; in excess of acidity, in the presence of glucose and of crystalline deposits of uric acid, urates, and oxalates. Frequently associated with these conditions are diverse nervous disturbances, some central, some of reflex origin. Visceral neuroses, trigeminal, occipital, intercostal, lumbo-abdominal and sciatic neuralgias, vertigo, numbness, itching, burning, and other perversions of sensation are often symptomatic of the gouty diathesis; to these may be added the psychical disorders, hysteria and hypochondriasis.

It would be impossible, in the limits of this paper, to do more than indicate in the briefest manner the tissue derangements which occur in this diathesis. They may be conveniently classified as affecting the tegumentary structures, the skin and mucous membranes, and, through the connective tissue and the fibrous structures, the arteries, the viscera, the locomotor apparatus, and the nervous system. The liability of gouty persons to transient vasomotor derangements, and to more or less persistent inflammatory processes in the skin and mucous membranes, is too well recognized to require comment. The cutaneous erythemas, eczemas, seborrhœas, the catarrhs, pulmonary, gastro-intestinal and genito-urinary, which are associated with this diathesis are much more common than is generally believed.

The fibrous tissue lesions are observed in thickened arteries, in valvular diseases of the heart, in cirrhosis of the lungs, liver, and kidneys, in acute and chronic inflammations in and around the joints, and in perineuritis. In making this statement in regard to joint affections, I am aware that it assumes more than is admitted by many authorities on the pathology of the joints. If the presence of tophous deposits is regarded as essential to gouty inflammation, this anatomical evidence of the gouty nature of rheumatoid arthritis and nodi digitorum is certainly often wanting; but, if we regard the excess of uric acid in the blood not as the essential cause of gouty inflammation, but rather as one of the epiphenomena of the gouty state, and as the consequence of defective excretion; and, furthermore, if we take into consideration the revelations of the personal and family history in gouty diseases, we will frequently find abundant proof of the kindred nature of lithæmic gout and the more common forms of rheumatoid arthritis. It is certainly often impossible to differentiate them clinically, and, so far as a similar origin can be inferred from their reactions to treatment, there is no lack of evidence of their relationship in this respect.

The common and varied nervous derangements of gouty persons have already been referred to, in connection with the numerous functional neuralgias and paræsthesias associated with gouty indigestion. In addition to these there are certain definite persistent neuralgias and perversions of sensations which are probably dependent upon perineuritis. The most common of these are the sciatic, cervico-brachial, intercostal, and lumbo-abdominal neuralgias; numbness, formication, itching, vertigo, and the like.

There is one other organic derangement which my experience leads me to believe is a common one in gouty families, and that is anæmia. The tendency to blood deterioration is especially noticeable in women who inherit this constitutional vice. We have presented this brief and imperfect sketch of the gouty diathesis because it seemed an essential preliminary step to the consideration of its dietetic

management: for it is clear that if this diathesis has its origin in habits of eating and drinking, the rational basis of treatment must involve a serious modification of these habits by the regulation of the diet.

Gout may fairly be regarded as a disease of modern civilization, and as presenting its most typical and varied manifestation in the more advanced communities of the civilized world. It has been said that had mankind continued to be vegetable feeders, and never known the use of wine or beer, we should have had no experience of gout. This is probably a very partial and imperfect statement of the origin of this widespread disease, inasmuch as typical gouty arthritis has been observed in the herbivorous animals. There are doubtless many factors in the production of this diathesis, relating to quantity as well as quality of food, to the relations of food to work and habits of life, indeed, to all the circumstances which affect the complex metabolism of food and the evolution of vital energy in the process of nutrition.

It is a common belief that gout is largely the result of excessive indulgence in animal foods, and yet, as has been already remarked, there is no more conspicuous characteristic of gouty persons than their feeble capacity for the digestion of the carbohydrates and their derivatives. It is a fact of daily observation that the disorders of digestion, with all the attendant derangements which belong to the gouty diathesis, are especially determined and aggravated by the too liberal use of sweets, starches, wine and beer. It is the recognition of this feeble capacity for the conversion of the carbohydrates, which, I believe, suggests the guiding principle in the regulation of the diet of gouty persons. It is important to note that this is in diametric opposition to that regulation of the diet which is based upon the theory that uric acid is the essential cause of gout. This theory makes the exclusion of nitrogenous foods the special feature of an anti-gouty diet. But while a diet largely composed of carbonaceous foods is opposed to the generally accepted theory of gout production, I believe that clinical experience amply demonstrates that it is the most efficient cause of the lithæmic state and the protean miseries of the gouty diathesis.

More than fifteen years ago while studying the relations of the benign form of glycosuria to gout, I was impressed with the frequent association of the saccharine disease with the characteristic symptoms of the acid dyspepsia of gouty subjects, and not only this but with the actual correlation of gout and diabetes in different members of gouty families and frequently with the association of the two diseases in the same individual. I was led to this observation largely by the impressive lectures of Bence Jones on the "Applications of Chemistry to Pathology and Therapeutics." A large clinical experience has confirmed me in the belief that the theory of suboxidation explains better than any other the etiology of glycosuria and gout, and that in both these diseases the consequences of defective oxidation are first and most markedly observed in the digestion of the carbohydrates.

I have thus referred to glycosuria as belonging to the family of gouty diseases because the diet which is prescribed for this malady represents the extreme degree to which it may be necessary to carry the exclusion of non-albuminous foods in some forms of gouty disease. If we consider the ordinary anti-diabetic diet we find that the order in which the non-nitrogenous elements are excluded in glycosuria is first the sugars, including fruits, wine, and cider, and secondly, starches, including beer. The same order has often to be observed in the regulation of the diet of gouty persons. The intolerance of sweet desserts, of fruits, raw or cooked, and especially of wine, is one of the most frequent indications of this diathesis and in decidedly gouty persons indulgence in these articles of diet is pretty certainly followed by the characteristic dyspeptic symptoms, or by some of the nervous disturbances which I have mentioned. It is not uncommon for gouty persons to present special idiosyncrasies in regard to certain articles of diet of this class. This is notably true of particular varieties of wine and fruits, muscular and articular pains and even articular inflammation being promptly provoked by them.

The intolerance of considerable quantities of farinaceous foods and beers, while perhaps less marked than that of sweets and wine, is still often a pronounced characteristic of gouty subjects. They give rise to indigestions, which are especially apt to be accompanied by mucous catarrhs and cutaneous eruptions. The evil effects of excessive quantities of farinaceous foods are often observed in the children of gouty parents, in whom they engender an abnormal accumulation of fat, catarrhal affections, eczemas, and not infrequently lithæmic neuroses.

While the restriction of starchy foods seldom requires to be so absolute as that of sweets in the diet of gouty disease there is no question as to the value of their complete exclusion in certain cases. The strict enforcement of a purely nitrogenous diet in some cases of rheumatoid arthritis, and especially in aggravated forms of gastric catarrh, is unquestionably a therapeutic measure of conspicuous value. The utility of a diet of meat in these cases has met with a certain degree of popular recognition through the success of the so-called "Salisbury treatment," and this very fact has perhaps retarded a more general acceptance of its value by the profession. My own experience has furnished many examples of chronic arthritis, gastric catarrh, and lithæmia which have proved rebellious to all treatment while farina-

ceous foods were allowed to form an element of the diet. The cases, I think, are few where it is necessary to exclude them entirely, but I am sure they are very numerous where the greatest benefit is derived from reducing them to a moderate amount of bread, and allowing a variety of animal food and green vegetables. The hydrocarbons, butter, cream, cheese, nuts, marrow, and the fat of meats may be allowed in moderation, and serve to replace the carbohydrates in an ordinary mixed diet.

As the most pronounced peculiarity of the victims of the gouty diathesis is the prompt reaction which they present to wine and beer, it follows that the exclusion of these beverages, as articles of diet, must be insisted upon. This is often a difficult injunction to enforce. There is so strong a popular and professional prejudice in favor of fermented liquors as articles of diet that one can hardly prohibit the use of them, under any circumstances, without being regarded as a crank. In spite, however, of the generally received opinion that ardent spirits are responsible for all the physical evils of intemperance, I have long been inclined to believe that the fermented preparations of alcohol are equally, if not more productive of functional derangements, and even of structural lesions. Certainly, if alcohol is allowed at all, very dilute spirits or dry champagnes are the only forms, as a rule, which victims of gout can use with impunity.

I would also repeat the caution which I have suggested in regard to fruits. I believe it is often very important to insist upon the exclusion of fruits from the diet of gouty persons. This is another injunction which is so opposed to popular and even professional sentiment that it is frequently difficult to enforce it.

I have thus sketched very briefly, the principles which I believe should guide us in regulating the diet of persons presenting the general features of the gouty diathesis. There are many details in this regulation based upon the more or less pronounced intensity of the diathesis, upon its particular manifestations, and upon the special idiosyncrasies which gouty persons exhibit in regard to certain articles of diet which are very important and which necessarily make each individual case a study by itself. These details I have not time to consider. It will be observed that the general principles which I have stated are based upon the recognition of the fact that gouty subjects have a limited capacity for the digestion, and conversion into the different forms of vital energy, of the carbohydrates. There seems to be no better way of expressing this cardinal peculiarity. How this departure from what has generally been regarded as the primitive habits of man as a vegetable feeder, has been brought about, it is not our purpose now to inquire. I would simply remark in regard to this point, that it is probable that the exigencies of modern civilized life have come to demand a finer adaptation of diet to occupations and mode of life than has hitherto been considered necessary or practicable. The relations of food to work, or to the diverse developments of human energy, and the regulation of diet according to special physical defects, constitute some of the most interesting and important problems that can engage our attention. Science has long since arrived at some definite conclusions on these questions in their application to the training of athletes, the animals which serve and amuse us, but beyond this it has not shed much light. It may be said, however, that it is probable that the carbodydrates are the foods best adapted to the evolution of the greatest and most prolonged muscular energy, and that they are most perfectly consumed and in the largest amount by those whose lives are spent in mechanical work and under favorable conditions in the open air. There is also good reason to believe that brain workers, and those whose lives are passed indoors, and in more or less physical indolence, require, for the best development of their energies, a diet that is rich in albuminous foods.

OMPHALECTOMY FOR STRANGULATED UMBILICAL HERNIA; DEATH.

By W. W. KEEN, M.D.,

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MRS. G., æt. fifty-six, a short, very fat woman, abdominal girth fifty-four inches, had had five children. After the birth of her last child, eighteen years ago, an umbilical hernia showed itself, of the size of a small pear. She has worn no truss. She has had repeated attacks of intestinal colic transient in character; but no other inconvenience, nor had the tumor enlarged. Within a year she has had several bad falls, but no special symptom referable to the tumor. The last occurred a week before the present sickness. At 5 A. M., January 21, 1888, without apparent cause the tumor became painful and inflamed. She sent for Dr. Emma E. Musson, who treated her symptomatically as seemed to be called for. Her bowels were freely opened that morning. She vomited, repeatedly, simple bilious matter.

I first saw her January 23d, at Dr. Musson's request. I found the tumor inflamed and softened over about one-third of its area, the rest being hard and doughy. It was not fluctuating and was entirely dull on the most careful percussion. It was very tender and admitted of but little attempt at taxis, which was unsuccessful. Simple antiseptic dressing was therefore applied lest it should open spontaneously. Morphia and atrophia relieved both the pain and the vomiting. The diagnosis was an irreducible old omental hernia with, probably, a recent enterocele in addition.

January 24. Her symptoms have somewhat ame-

liorated. The temperature has not risen above 99.2°. The vomita have become brown and thicker, but absolutely without fecal odor. The tumor has kept at the same grade of inflammation, but has softened over all its surface without bursting. Its tenderness has decidedly lessened, so that it can be easily handled, but the hernia cannot be reduced. The hypodermatic needle showed the liquid contents to be bloody serum and not pus, and with no fecal odor. Around the navel, over two fingers' breadth, is a ring of hardening, but no tenderness or other evidence of peritonitis. Her vomiting has been less frequent, only two or three times a day.

26th. The same conditions obtain ; no further rise of temperature ; moderate purgatives had produced no evacuation. An exploratory operation was decided on for the next day, unless she was decidedly better. Dr. Musson examined the urine, finding it normal, no sugar or albumen.

27th. Last night distinct fecal vomiting set in, and this morning the matters vomited were really liquid feces and very offensive. At 9.45 A. M. I operated with ether and strict antisepsis. I incised the sac, when a few drops of odorless bloody serum escaped and a mass of healthy uninflamed omentum came in view. This was adherent at almost every point, but most of the adhesions could be broken up with moderate force. Deep down in its centre I found the ring of the umbilical opening. The belly wall was three inches thick, and the tip of my forefinger just reached the ring. Through this protruded a small coil of intestine which was surrounded and covered in by the omental fat. The intestine was a little congested, but not dark in color, nor soft in consistence. By loosening its moderate adhesions I was able to reduce it. The ring then was found to be as large as the forefinger, with a firm thickened rim. I tried then to reduce the omental protrusion, but its adhesions at the mouth of the sac were too firm.

The umbilical opening was so deep, and the ring so thick and unyielding, that it was hopeless to attempt its closure ; and to leave it as it was, so thoroughly open and so inaccessible to external pressure through so thick an abdominal wall, was but to invite a speedy return of the hernia. Accordingly, I at once performed omphalectomy, a procedure I had previously decided upon in case I should operate, unless circumstances should forbid. I made a vertical elliptical incision six inches long, including the umbilicus at its centre, only one vessel requiring ligature. When the abdomen was opened, excepting the hernia, I saw nothing abnormal and I did not explore it. I tied and divided the omentum adherent to the umbilical opening and immediately proceeded to close the abdomen. I used four rows of sutures, one to the peritoneum, one to the muscular wall which was very thin, a third to the enormously thickened fatty layer, and the fourth to the skin. The first three were of chromic catgut, the fourth of wire. Sublimate gauze and a binder completed the dressing.

She passed the night in fair comfort, with a little morphia, but her temperature at 9.30 P. M. was 100.8°, at 4 A. M. 103.4°, and in the morning at 10.30 had risen to 104°. At 4 A. M. she vomited once, but it had only a faint fecal odor. At noon her temperature was 103.6°, and as Dr. Musson had already given her 20 grains of quinine by the rectum, I advised 15 grains antipyrin. She had no pain. She was somewhat stupid, and her general condition was far from satisfactory ; gaping, sleepy, and with a quick and feeble pulse. She was also somewhat jaundiced.

At 2.15 P. M. she took the antipyrin. At 2.45 P. M. she was partially collapsed, the hands and feet cold, pulse quick and thready, and she was nearly unconscious, temperature 102.4°. This condition gradually deepened in spite of external heat, brandy, digitalis at short intervals by the hypodermatic syringe, etc., till 7 P. M., when she died.

Post-mortem nineteen hours after death by Dr. Musson.

Result of Post-mortem. — The wound showed no signs of uniting. The peritoneum, omentum, and transverse colon were an adherent mass, dark in color.

The *bowel* just above the cæcum, and the part found in the hernia were gangrenous in appearance.

The *stomach* contained a pint of fluid fecal matter, which formed a coating to the whole lining of the stomach. The stomach and bowels were distended with gas. Decomposition had been rapid.

The *gall-bladder* was filled with stones.

The *right kidney* contained a large cavity filled with urine and numerous small stones. Little or no kidney substance was left.

The *left kidney* was large, flabby, and friable.

Spleen, substance friable.

Liver, under surface grayish-green.

Signs of an old *perityphlitis* were found.

The *chest* was not opened.

Remarks.—The operation above detailed I had intended to perform, some years ago, for the radical cure of a large non-strangulated umbilical hernia, but circumstances made it impossible.

So far as I know, this is the second case of umbilical hernia treated by Omphalectomy, and, indeed, until Dr. Wm. J. Taylor made a necessarily hasty search through the literature of the subject, I thought it the first. In the *Medical Record* for 1866, p. 73, Prof. H. R. Storer describes the case of a woman upon whom he performed a precisely similar operasion, Feb. 4, 1866. She was forty-one years of age, and had suffered from ascites, of hepatic origin, for many years. For this she was tapped forty-five times, not only to relieve the ascites, but, at last, to prevent actual rupture of the umbilicus. For the same reason as myself he made a long incision (seven inches), so as to avoid the puckering and plaiting of the margins, if a simple, circular, or short oval incision had been made. At the end of twenty-four hours she was doing well, when from a sudden fright, which, in her enfeebled condition she could not resist, she "rapidly sank and died of secondary shock, thirty-eight hours after the operation." At

the autopsy no peritonitis was found. The gall-bladder was distended with calculi.

In these days of abdominal surgery it is rather curious to see the serious storm of criticism that the case aroused—so serious that Prof. Storer deemed it needful to enter into an elaborate defence of it—a defence which subsequent events have fully indorsed. Indeed this is one of the earliest cases of a purely exploratory laparotomy that I know of, and is most creditable to Prof. Storer's foresight. November 21, 1865, two months before the appearance of the umbilical distention, and two and a half months before the Omphalectomy, he made a distinctly exploratory operation to clear up the diagnosis; but as, with a caution due to the then prevailing sentiment in the profession, he only explored the pelvis, he did not discover the nature of the hepatic trouble. She was entirely well, without any bad symptom, in five days.

In the *Trans. Amer. Surg. Assoc.*, vol. 7, 1887, a case of Dr. Michael's will be found in which for a non-strangulated, median, ventral hernia he did a precisely similar operation with a favorable result.

Umbilical herniæ are generally operated upon only by ordinary herniotomy, followed in some cases by ligature of the sac or suture of the ring. I believe, in spite of the unfavorable result of these two cases, a result incidental and not fundamental, that Omphalectomy in cases of strangulated, and often of non-strangulated, umbilical herniæ will in time prove to be the proper procedure, especially in cases like my own, where the immense thickness of the belly wall makes any operation on the ring itself difficult if not impossible. The tendency of modern surgery is decidedly toward the radical cure of hernia, and the comparative safety of laparotomy, as now done, makes such a radical operation in umbilical hernia peculiarly wise.

My only regret in the present case is that I did not do the operation earlier, before the patient's strength was exhausted, and before the fecal vomiting set in. To this last I attribute her death. To fill the stomach of a healthy person with liquid feces would be perilous enough, but in the case of a patient already sick for six days it was more than she could bear, and her system was probably poisoned by it.

The condition of the kidneys was not suspected before death, although the urine was examined. Doubtless their unsatisfactory condition, as well as that of the liver and spleen, contributed somewhat to the ultimate result. The normal amount of water was secreted and drawn by the catheter after the operation.

The operation itself, in spite of the excessively thick abdominal wall and big, flabby belly, was very easy in its technique. Even in so large a belly no trouble was found in dealing with the intestine. Had the patient's condition been good, I have every reason to believe it would have been entirely successful.

How far the antipyrin may have contributed to the fatal result is open to question. The sudden and great rise of temperature seems to me to mark the septicæmia which would naturally be followed by speedy collapse. It was too sudden and too great to result from the operation alone, and the want of union in the walls of a healthy wound, and the gangrenous process in an intestine which was in far from an unfavorable condition at the time of the operation, seem to point distinctly toward septicæmia from fecal absorption.

The antipyrin probably did precipitate the impending collapse and hasten the lethal result.

The absence of fecal odor in the fluid of the sac is worthy of note, and is accounted for by the separation of the fluid from the protruded intestine by the omentum. This produced a doubt as to whether any intestine was caught in the hernia until the fecal vomiting settled that fact. Before that the temperature and all the local signs pointed rather to an old inflamed omental hernia only. Had the liquid shown a fecal odor I would have operated earlier, and I believe with a happier issue.

LEPROSY AFFECTING THE EYES.

BY CHARLES W. KOLLOCK, M.D.,
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THE opportunity of seeing and treating leprosy does not fall to the lot of many physicians in this country, and books upon ophthalmology written here and abroad either mention it incidentally or not at all. No new light will be thrown upon its etiology or treatment, but a simple description of the effect of the disease upon the eyes, and the treatment pursued, is the purport of this paper.

Though but one case has come under my notice it is a well-known fact that the disease has existed in sporadic cases in this neighborhood for years. It has not spread, nor has it been inherited, so far as can be ascertained. In but one instance to my knowledge has more than one member of the same family been affected. In this case a lady and her niece were both diseased. The latter, as soon as the disease became known, at once put herself under treatment and the disease apparently was in abeyance. She died quite suddenly of heart trouble.

In May, 1886, Mrs. —— was brought for consultation concerning her eyes. She had been sick about six years, and the disease was a pronounced case of lepra tuberosa and anæsthetica, the tuberosities and anæsthetic spots both being present. The leonine countenance was not at that time so well marked as it had been some months previous, but even then there was a heavy, wrinkled and distorted appearance. Under treatment consisting at times of Chaulmoogra oil and Hoang-nan she had im-

proved slightly, the tuberosities disappearing to a considerable degree, but leaving the anæsthetic spots.

She was very miserable, with poor appetite, suffered from insomnia, was exceedingly nervous, and with vision so defective that it was with difficulty she could find her way about the house. This difficulty was increased by the loss of the tactile sense of the fingers and hands, which were swollen, especially around the joints, and lacked sensation to such an extent that she was badly burned by a stove without being at first aware that it was heated.

Her eyes became affected about two years prior to her visit. Vision was as follows: R. E. $\frac{1}{cc}$; L. E. $\frac{10}{cc.}$ There were photophobia, lachrymation, narrowing of the palpebral fissures, thickening of the lids, ocular and palpebral conjunctivitis, and keratitis. The corneæ were hazy and covered with facets, and near the centre of each was a whitish spot about three mm. in diameter. Small blood-vessels ran from the conjunctivæ to these spots, which were not like the true pannus, but lighter in color and more deeply set in the corneæ. The irides were dull, pupils not dilated, and reacting but slightly to a strong solution of atropine. Apparently there were no posterior synechiæ, for the pupils dilated regularly, and whether this inactive condition was due to non-absorption of the mydriatic by the corneæ, or to a stiffened and infiltrated state of the irides, is a matter of conjecture, but probably both contributed. Owing to the hazy condition of the corneæ no intraocular examination could be made.

Having never seen a case of lepra, I was inclined to be sanguine of improving the condition of the eyes. Attention was directed to the lids, cornea, and iris. For the lids all known collyria, not irritating to the cornea, were used, and solutions of nitrate of silver carefully applied. Atropine at first allayed the pain and moderately dilated the pupils (beyond a certain point they would not go), but after a time it set up violent inflammation, and was discontinued. Eserine was without avail, and the ointment of yellow oxide of mercury and calomel failed to accomplish any good. Jequirity (three per cent. solution) was used on several different occasions, intense inflammation followed as usual, promptly subsided when the applications were stopped, and the condition of cornea and lids remained unchanged.

Iridectomy was performed upon the worse eye (right), and though there was at this point comparatively clear cornea, no improvement in vision followed. The lens seemed fairly clear through the hazy cornea. Finally both spots were deeply cauterized by the galvano-cautery, and this alone seemed to better the conditions a very little by causing slight contraction of the spots and smoothing of the surfaces.

After this treatment was discontinued, as the patient and family were averse to more active measures which would have been more extensive, including cauterization and perhaps extraction of the lens, which has of late become distinctly cataractous.

The size of the spots has not materially increased, but vision has gradually grown worse, she being able to distinguish the movements of a hand before the eyes, but cannot count fingers. Secondi, of Genoa, reports several cases where vision was improved and the disease apparently checked by excising the spots from the cornea, and performing iridectomy.

It is unfortunate that no ophthalmoscopical examination was possible, for it is believed that the disease has extended to the retina and choroid, as no improvement in vision followed the iridectomy, at which time the cornea and lens were not opaque.

Though treatment has been unavailing, and the condition of the eyes, as far as vision is concerned, has gradually become worse, still, I am inclined to think that had a thorough and repeated application of the galvano-cautery been made in the beginning of the attack the result would have been different.

MEDICAL PROGRESS.

The Antiseptic Values of Chlorides, Nitrates, and Sulphates.—In a recent number of the *Journal of the Society of Chemical Industry* (Vol. vi. No. 11), Mr. C. T. Kingzett, F.C.S., records the results of some experiments which he has conducted in order to determine the relative extent to which certain metallic chlorides, nitrates, and sulphates retard the appearance of mould on flour-paste, and putrefaction in extract of beef respectively. The general bearing of the results is to show that the salts of the alkalies and alkaline earth, excepting magnesium sulphate, appear in many instances to promote and never to retard the growth of mould. The compounds of zinc resemble those of the alkaline earths in their action. On the other hand, the salts of iron, tin, lead, and aluminium exercise distinct but not very powerful effects in preventing the appearance of mould. The chloride of lead is, however, more active, whilst the most efficient are the chlorides of mercury and copper. In preventing the putrefaction of extract of beef, the chlorides of mercury and copper were also the most effective; whilst chloride of zinc was more and chloride of lead less active than in retarding the growth of mould on flour-paste. The value of the investigation is very much reduced owing to the experiments not having been conducted on the modern lines of bacteriological research. Thus the various test-glasses containing the experimental media were allowed to become accidentally infected from the air to which they were exposed, instead of being all inoculated either with some definite microörganism or with some definite mixture of microbes, as is now invariably done in experiments of the kind.—*British Medical Journal*, January 21, 1888.

Poisoning from Boric Acid, in Surgical Practice.—Dr. Spencer, of St. Paul, reports the following case, in the *Northwestern Lancet* of January 15, 1888.

A short time since a woman was admitted to the City Hospital with syphilitic necrosis and caries of the bones forming the ankle-joint. October 2d, he removed by scooping, scraping, etc., parts of the lower ends of the tibia and fibula, and nearly all of the astragalus. The

sinuses in the soft parts about the joints were scraped as clean as possible, the cavity was washed out with a weak bichloride solution, and packed with large crystals of boric acid, probably something over half an ounce being used. Although the wound was very foul-smelling at the time of operation, it was left undressed for a week and was then found nearly free from odor. Most of the acid was still undissolved in the cavity, but a small portion having been absorbed. It was washed out and dressed in the same way as before and left for another week. During this time, fourteen days, her health, appetite, and general condition were good. She then began to lose her appetite, and in a short time had nausea and vomiting, which grew progressively worse, so that, finally, nothing could be retained by the stomach. Lime water, counter-irritation, and cold to the epigastrium, morphia, ipecac, and all the various anti-emetics were used in vain. Her other symptoms were restlessness, insomnia, the little sleep she did get being very disturbed, almost constant hiccough, great weakness and emaciation, and a very marked cardiac weakness. Although her pulse was very weak, there was none of the compensating rapidity which generally occurs in heart failure. She had a rather severe coryza, the conjunctivæ were very red and inflamed, there was marked inflammation of the fauces and pharynx, some bronchitis, and an acrid discharge from the anterior nares. Her tongue was red, glazed, and cracked. There was a very well-marked papular erythema, the papules nearly coalescing over the face, neck, arms, and upper part of chest. These symptoms came on gradually and grew worse for three days, at which time she was very weak, though she had taken considerable nourishment by rectum. The dressing was then changed, and the symptoms here noted began to disappear, although it was ten days before she was as well as before they began.

The Treatment of Acne.—Unna, in the *Monatshefte für praktische Dermatologie*, No. 1, 1888, advises the use of the following formulæ, to be applied at night:

Ung. zinc. benzoat.	86 parts.
Sulphur. præcip.	10 "
Terræ siliceæ	4 "

Or

Ung. zinc. benzoat.	80 parts.
Resorcin. puriss.	10 "
Terræ siliceæ	10 "

For use during the day either of the following lotions may be employed:

Resorcin.	2 to 5 parts.
Glycerin.	1 part.
Aq. flor. aurant.	20 parts.
Spiritus	80 "

Or

Hydrarg. bichlor. corros.	$\frac{1}{20}$ to $\frac{1}{2}$ part.
Glycerin.	1 part.
Aq. flor. aurant.	20 parts.
Spiritus	80 "

[3] ***Typhoid Bacilli and Boiling Water.***—In order to test the destructive power of boiling water on typhoid bacilli, Dr. Vilchur, of St. Petersburg, made a number of pure cultures in broth, keeping them in a thermostat for two days at a temperature of about 92° F., and then mixed them with known proportions of boiling water, immediately afterward sowing the mixtures in jelly. The results showed that, when the volume of boiling water equalled that of the culture, the bacilli were partially but not wholly destroyed. When double the volume of boiling water was used, the bacilli were all killed. From experiments with typhoid stools, he found that all the bacilli, however numerous, were invariably destroyed by the addition of a volume of boiling water equal to four time that of the stool. In this way he suggests it will be easy to disinfect with certainty all the dejections of typhoid patients.—*Lancet*, January 14, 1888.

Impaction of a Coin in the Larynx; Laryngotomy; Recovery. Archambaud reports the case of a man, aged twenty-three, who came to one of the Paris clinics suffering from prostration in a marked degree. Two days previously he had swallowed a 50 centime piece, which had lodged in the larynx. He had been suffering from dyspnœa, could take food with the greatest difficulty, and was on the verge of exhaustion.

Examination revealed the coin lying upon the lower vocal cords; it was enclosed from right to left by the ventricles of Morgagni; in front it disappeared under the anterior portion of the ventricular bands; behind one could see clearly the arc which it described; it was separated from the arytenoid region by a very small space.

The patient respired only by means of the cartilaginous portion of the larynx; had the accident happened to a child it must have proved fatal. Efforts at extraction by instruments introduced into the larynx having proved unsuccessful, an incision was made in the median line of the thyroid cartilage at the insertion of the vocal cords and the coin was removed. The patient recovered perfectly in twenty days.—*L'Abeille Médicale*, Jan. 9, 1888.

The Treatment of Otitis Media.—Cazzolino is quoted by the *Journal de Méd.* of January 15, 1888, as using the following fluid for injection in purulent otitis media:

Aquæ destill.	℥ 25.
Glycerin.	℥ 12½.
Iodid. pur.	grs. 5¼.
Potass. iodid.	grs. 30.
Acid. carbolic.	grs. 15.

Which may be diluted if its application be painful. Three injections of this fluid, when warmed, were given daily, with good results.

Fecal Tumor of the Rectum, obscuring Diagnosis.—The *Medical Press and Circular* of January 18, 1888, reports the case of a woman suffering from great pain in the abdomen and toward the back, resembling in many points a fibroid tumor of the uterus. She was constipated habitually for the previous four months, and, as a consequence, she suffered periodically from diarrhœa, but she always felt as if the rectum was not sufficiently emptied of its contents. Examination through the vagina revealed a hard globular tumor at the posterior part, but it was evident that the rectum was the seat of it. On passing the finger into the latter place a lump could be plainly felt firmly attached to the posterior wall, hard and immovable. At one point fluctuation seemed to be

present, but all attempts to dislodge it were fruitless. Cancer of the rectum could not be entertained as the most usual symptoms were absent. Suspecting a fecal collection enemas of glycerine were ordered for a week, and at the end of that period the tumor was easily broken down and removed.

Creolin, a New Antiseptic.—The Vienna correspondent of the *British Medical Journal* of January 21, 1888, writes that Neudörfer has used this antiseptic in military surgery with good results. It is a sort of tar which is obtained from the English pit coals by dry distillation, and from which the poisonous hydrocarbons have been eliminated. The chemical constitution is not yet established, but owing to its characteristic qualities it can be very easily reecognized by the practitioner. It is derived from the aromatic class of hydrocarbons, and it is closely related to creasote, carbolic acid, resorcin, hydrochinon, etc. The very first results which Dr. Neudörfer had obtained with this drug were very favorable, and he had for this reason at last abandoned all the other antiseptics and used only creolin. The first success he had obtained with it was in the case of a girl, aged seven, who suffered from *erysipelas bullosum migrans faciei*. The skin of the nose, the upper lip, and over both zygomatic arches was greatly stretched and much reddened; some pustules were also present. The lower eyelids were œdematous, the frequency of the pulse and the temperature were increased, and the patient also suffered from headache. Dr. Neudörfer said to the relatives that the erysipelas would spread over the forehead and ears, and that it would disappear in from seven to ten days. He ordered a two per cent. solution of hydrocarbonate of sodium with syrupus simplex, and directed the erysipelatous parts to be brushed thrice a day with undiluted creolin. The erysipelas did not advance; the pustules dried up; the infiltration of the skin disappeared, and the patient ceased to complain of pain. The symptoms of fever also disappeared, and the erysipelas was cured in two days and a half. Dr. Neudörfer has, since that time, tried creolin in two other cases of erysipelas with like success. In former times he used always to treat severe cases of erysipelas successfully with subcutaneous injections of carbolic acid, and he had, therefore, no reason to resort to the method of Krascke. Since he had tried creolin, however, he no longer used subcutaneous injections of carbolic acid, which had recently been again recommended by Fehleisen. The second case which had been antiseptically treated with creolin was that of a butcher, aged twenty-seven, who had cut the last phalanx of his left middle finger and the terminal front of his ring finger. After treatment with a two per cent. solution of creolin and the application of creolin gauze, the wound healed, in eight days, without suppuration or swelling. In the third case, in which a tumor in the region of the lower jaw was removed from a woman aged thirty, creolin was used during the operation and afterward as a dressing, two silk sutures closed the wound, and no drainage tube was put in. On the third day the sutures were removed; the wound was already closed, and the dressing could also be removed. The author has since used creolin in several minor operations, both in the polyclinic and in private practice, and has always observed that it relieved pain, checked the hemorrhage, and limited suppuration. At first he used a two per cent. solution, but he has now found that creolin is efficient in a one-half per cent. solution. Dr. Neudörfer prepares a fresh solution each time by adding two drops of creolin to 6 ounces of water. He uses only ungreased gauze, which, being folded from ten to twelve times, is wrung out of the milky solution and applied to the wound, which is afterward covered with several layers of dry gauze. The dressing may be left until healing has taken place. This dressing is very convenient, both for the physician and the patient, and it is also very cheap. The surgeon's wards, the patient's skin, and the instruments, can be disinfected with a two per cent. solution of creolin. For country practice, as well as for use in war, creolin is, in his opinion, the most trustworthy and convenient, as well as the cheapest and most harmless antiseptic.

A Lozenge, for Use in Phthisis.—Durand prescribes

Iodoform	gr. ¼.
Tannin	gr. 4.
Ext. caffeine	q. s.

To be made into a confection which may be taken at meals. He has found it of service in the iodoform treatment of phthisis.—*Journ. de Méd.*, January 15, 1888.

Iodine in Ascites.—Dr. Rivadeneyra, writing in *La Correspondencia Médica* on ascites due not to lesions of the heart, kidneys, or liver, but to the general condition of malarial poisoning, speaks highly of the success of iodine applications. He applies the tincture to the surface of the abdomen in strips or fringes, leaving a breadth of clear skin between each. The untouched parts are similarly painted when the iodine has caused the skin to begin to peel off. In cases where the ascites is very considerable, paracentesis is first performed, and the iodine applications commenced a few hours afterward. —*Lancet*, January 28, 1888.

The Treatment of Furuncle and Carbuncle by Spraying with Carbolic Acid.—Verneuil, at a recent meeting of the Paris Academy of Medicine, read a paper on this subject, whose conclusions were as follows: Furuncle and carbuncle (or anthrax) are but different manifestations of the same infection, to be treated on identical principles. Treatment should be surgical and topical; the use of proper topical remedies will greatly lessen the need for surgical intervention. Carbolic acid spray is a means of topical treatment, antiseptic and anæsthetic, and indicated in these affections.—*L'Union Médicale*, January 19, 1888.

Pancreatic Cyst; Laparotomy; Recovery.—At a recent meeting of the "Verein der Aerzte in Steiermark," Prof. Wölfler showed a girl in whom an incision of a cyst of the pancreas which was covered by the stomach was successfully performed. A longitudinal incision reaching from the xiphoid process to the navel was made; the stomach which lay before the tumor had to be lifted, and the transverse mesocolon was split. After the puncture of the tumor a rather large quantity of liquid escaped, which, on chemical examination by Prof. Taksch, proved to contain ferments, hence the diagnosis was thus confirmed. It was found impossible to extirpate the cyst; it was, therefore, filled with antiseptic substances, and sutured to the abdominal walls. The patient's life was

for a long time in danger, fever supervened as the margins of the cyst became gangrenous. She is now quite healthy, and a scar of the length of the section which had been made is to be seen in the middle of the abdomen. This was the first case in which a pancreatic cyst was diagnosticated in, and removed from, a woman. —*Medical Press*, January 25, 1888.

Angioma of the Epiglottis.—In the *Revista de Ciencias Medicas*, Dr. C. M. Desvernine reports an example of pedunculated angioma of the epiglottis. The patient was a man, aged fifty-three, of robust constitution, who for two months before he came under notice had suffered from occasional slight bleeding from the throat. On November 14th, he lost a large amount of blood, and the hemorrhage only ceased on syncope supervening. Laryngoscopic examination showed an ovoid tumor of lobulated appearance and dark blue color, and measuring ¾ of an inch in length by ½ in breadth, springing from the laryngeal surface of the epiglottis to the left of the middle line, about midway between the base and the apex. The tumor was attached by a short pedicle, and there was no infiltration of the tissues around its root. On November 27th, the pharynx and larynx having first been anæsthetized with a concentrated solution of cocaine, the tumor was removed with the galvano-caustic snare. The only trace of the operation was a small eschar which came away a few days later, leaving the site of the tumor completely healed. Microscopic examination showed that it was an angioma enclosed in a fibrous capsule.—*British Medical Journal*, January 21, 1888.

The Treatment of Uræmia.—Rolland has found the following prescription useful:

Ext. jaborandi (alcohol.),	
Ext. scillæ,	
Resin. jalap.,	
Resin. scammon. . . .	āā gr. ¾.

In pill form.

Four or five pills in twenty-four hours, with an exclusively milk diet, yielded good results.—*Journ. de Méd.*, January 15, 1888.

An Unusual Cause of Death after Laparotomy. — At a recent meeting of the Berlin Obstetrical Society, Olshausen reported several cases of laparotomy, in which the intestines were necessarily removed from the abdomen during the operation. The patients in question had been taken with symptoms of collapse a few days after the operation with symptoms of strangulation. Death occurred five or ten days after operation. Olshausen explained the fatal result through paralysis of the intestine and consequent absorption of poisonous feces. The intestinal paralysis is produced by the disturbances in circulation occurring in the intestine when removed temporarily from the abdomen, it is dependent on venous hyperæmia and extravasation.—*Centralblatt für Gynäkologie*, January 7, 1888.

Stone in the Stomach.—Concretions, or stones, are not often found in the human stomach, though the bezoar of the abomasum and intestines of ruminants is well known, and in olden days was very highly esteemed as a remedy against poisons and infectious diseases, being even worn as a charm. Human intestinal agglomerates are occasionally found in oatmeal-eating districts, and have sometimes been dignified by the name of "avenoliths." An enterolith was found by Laugier in a human subject, the nucleus of which was formed by a piece of liquorice root. True gasteroliths are, however, occasionally found in human stomachs; thus Schönborn was able to collect seven such cases, all of which appeared to have formed round a nucleus of hair; one of these weighed two kilogrammes. Quite recently a Dutch physician, Dr. H. A. Kooyker, has described a case of true gastric concretion weighing 885 grammes, in which there was no nucleus at all. The patient was a middle-aged man, who was so averse to examination and manipulation of all kinds that it was very difficult to form a diagnosis of his disease. He occasionally vomited blood, and gradually became more and more emaciated. A tumor was felt in the epigastrium, but its nature was not made out until the post-mortem examination revealed a stone measuring eighteen by eight centimetres nearly filling the cavity of the stomach. There was also a smaller stone situated at the pyloric extremity. These stones were of a brownish color, and the large one contained several cavities. It had an offensive smell like that of feces. A number of vegetable cells were found in it, but it was devoid of concentric or other structure. It does not seem to have been fully analyzed.—*Lancet*, January 28, 1888.

A Poisonous Ptomaine in Expired Air.—At a recent meeting of the French Academy of Sciences, Brown-Séquard and D'Arsonval reported experiments which confirm their previous studies, showing that by condensing the vapor of air expired by human beings, a liquid is obtained containing a poisonous ptomaine, which produces, when injected into the bodies of animals, symptoms of septic intoxication. When exposed to a temperature of 212° F. this fluid increased in virulence, showing that bacteria are not its potent factor. Post-mortem examination of animals poisoned by this substance showed extensive disorganization of the blood.—*Gazette Hebdomadaire*, January 20, 1888.

Lithium, in Effervescing Water.—The following powder, in a wine glass of common soda, is a convenient form of administering lithium:

Lithii carbonic.	gr. 38.
Sacchar. albi.	℥ 12½.

From 15 to 20 grains of the powder is a dose.—*Therapeutische Monatshefte*, January, 1888.

Pernicious Anæmia and the Bothriocephalus Latus.—Dr. Chapirow, a Russian physician, narrates of a lad suffering from a grave form of anæmia with febrile symptoms, extravasations of blood from the mucous surfaces and beneath the skin, etc., without any visceral disease to account for his condition. On examining the blood under the microscope the red corpuscles were found to be six times less numerous than in health, a veritable *oligocythemia rubra*. The patient's stools contained an abundance of ova. After the successful administration of a vermifuge the condition of the patient rapidly improved, and in a very short time the anæmia and its collateral symptoms disappeared.—*Medical Press*, January 25, 1888.

The Treatment of Diphtheritic Angina by Carbolized Douches.—ROULIN, in the *Journal de Méd.* of January 22, 1888, reports that he has treated 79 cases of diphtheria by douches of

Phenol sodique . . .	3 tablespoonfuls.
Water	1 quart.

without a death.

He regards the treatment as most successful in croup also. The douche was given by pressure upon a rubber bag, filled with fluid, resembling a Politzer's bag; the child was seated upon the side of the bed and a napkin put about its throat.

Intra-peritoneal Rupture of the Bladder; Laparotomy; Recovery.—WALSHAM, of London, reports the following case in the *British Medical Journal* of January 28, 1888.

C. H., aged twenty-two, was admitted March 1, 1887, into St. Bartholomew's Hospital, under the care of Mr. Walsham. He had been drinking the night before, and in a fight was butted by his opponent in the abdomen, his bladder being full at the time. He passed a night of great agony, and was brought in a cab to the hospital the following morning, but he was then suffering very little shock, and walked into the surgery with the assistance of two friends. He complained of pain in the lower part of the abdomen, and of having been unable to pass any urine since the blow, although his bladder was uncomfortably full at the time. The perineum was natural, and there was no history of stricture. On passing a catheter no urine flowed, although the point was ascertained to be in the bladder by the finger in the rectum. On depressing the handle the catheter was felt to free itself with a jerk, and its point could be then felt more plainly than natural through the abdominal walls. Bloody urine now escaped, the flow varying with respiration. About twelve hours after the injury Mr. Walsham opened the abdomen, and having discovered an intraperitoneal rent in the posterior wall of the bladder, sewed it up with nine Lembert sutures. The sutures were passed through the muscular and peritoneal coats only, and one was placed above and below the upper and lower angles of the wound respectively. The bladder having been forcibly injected with eight ounces of boric acid solution and found watertight, the peritoneum was irrigated with about two gallons of warm boric acid solution, and the abdominal wound closed as in ovariotomy. A catheter was left in the bladder for two hours, and the patient subsequently reminded to pass his urine every four hours. There was little shock, and the patient recovered. Daily notes were given at length. The author remarked that there had now been seventeen cases in which abdominal section had been performed for rupture of the bladder, three extraperitoneal and fourteen intraperitoneal. Of the three extraperitoneal cases two died and one recovered. In the successful case the wound in the bladder was secured to the abdominal wall but not sutured. In the fatal cases death was due to shock. The rent in one was found securely sutured at the post-mortem examination; in the other the rupture had not been discovered on opening the abdomen. Of the fourteen intraperitoneal ruptures the rent in the bladder was sutured in eleven, and in three a drainage tube was placed in the wound but no sutures employed. Of these three one recovered and two died, death being due to peritonitis and suppression of urine respectively. Of the eleven cases where the rent in the bladder was secured by sutures five recovered and six died, death being due in three cases to peritonitis, in two probably to shock, and in one to hemorrhage from a perineal incision employed for exploration. In the three cases of peritonitis the sutures had given way in one, and a leakage had occurred in the lower part of the wound in the other two. In the five successful cases Lembert sutures were employed, and the peritoneum was washed out, and in only one was a drainage tube used. The author discussed: 1, the advisability of early operation; 2, the importance of using a suture which will not become softened too soon, and of ascertaining before closing the abdominal wound that there is no leakage from the bladder; 3, the cleansing of the peritoneal cavity; 4, the inadvisability of a preliminary incision in the perineum, or of a subsequent incision in that region for the purpose of drain; and, 5, the question of tying in a catheter after the operation. A table of the seventeen cases was given, sixteen of which are in Sir William MacCormac's table appended to his work, *On Abdominal Section*.

The Local Treatment of Eczema.—BROCQ, in the *Revue Clin. et de Thér.* of January 19, 1888, adds to the formulæ he has already published the following:

Salicylic acid may be prescribed as follows:

Acid. salicylic.	gr. 15.
Tinct. benzoin.	℥ 30.
Vaselin.	ʒ 12½.

Acetate of lead, as follows:

Liquor. plumbi subacet. dilut. . .	ʒ 1.
Vaselin.	gr. 75.
Lanolin.	ʒ 10.

Vidal has obtained good results by the simple lead plaster of the Pharmacopœia, which he combines as follows:

Emplastr. plumbi	parts 60.
Ceræ flavæ	parts 25.
Ol. olivæ	parts 40.
Dextrin.	parts 2.
Aquæ	q. s.

Cod-liver oil plaster may be made after the following:

Empl. plumbi	parts 60
Ceræ flavæ	parts 25.
Ol. morrhuæ	parts 35.
Dextrin.	parts 2.
Aquæ	q. s.

Each of these combinations is to be thoroughly mixed, and spread upon suitable material.

Carl Braun's Method of Performing Hysterectomy.—In a recent number of the *Wiener Medizinische Wochenschrift*, Professor Charles Braun gives an account of thirty-eight cases of hysterectomy for fibroids, performed in the General Hospital, with only six deaths, that is to say, a mortality percentage of 15.5. The results which he had thus obtained were 2 per cent. behind those of Hegar, Kaltenbach, Bantock, and Keith, and about 16 per cent better than the results obtained by the Berlin

gynecologists. Professor Charles Braun is strongly in favor of the extraperitoneal treatment of the stump, as both the cases in which it was treated intraperitoneally ended fatally. According to him, the following are the indications for hysteromyomotomy: 1. Attacks of pain during menstruation or in the intervals between the periods, which recur frequently and render the patient unfit for work of any kind. 2. Functional disturbances from pressure on the neighboring organs (bladder, rectum, kidneys, stomach, or lungs) involving risk to life. 3. Severe metrorrhagia, in which a cure cannot be obtained by any less radical procedure. Instead of the aseptic sponges he in most of his cases uses mull gauze which has been for twenty-four hours before the operation boiled in a 1 per cent. solution of sublimate, and which is afterward washed in clear water. Immediately before and during the operation the gauze is wrung out of a hot solution of thymol (1 in 1000), and used for stopping the bleeding from the peritoneal surfaces after ligature of the bloodvessels. A solution of sublimate or carbolic acid is never brought into contact with the peritoneum. After the tumor has been brought forward the abdominal wound is temporarily closed by means of hooked forceps. The peritoneum of the abdominal wound is sutured above and below the stump, and the latter is fixed to the peritoneum of the abdominal wound by means of a mattress suture. Both the oviducts and the ovaries are separately ligatured with silk threads. Only after the closure of the abdominal wound by means of silk button sutures the tumor is removed, the stump being touched with the actual cautery and covered with benzoate of sodium. The extraperitoneal treatment of the stump in cases of hysteromyomotomy is specially advantageous when the myomata are situated in the wall of the body and the fundus of the uterus, but less so in those myomata which are situated between the walls of the cervix, the lips of the os, and the broad ligaments.—*British Medical Journal*, January 28, 1888.

A Paste for the Treatment of Pemphigus.—Unna, in *Monatshefte für Praktische Dermatologie*, No. 2, 1888, prescribes the following:

℞.—Ol. lini,
Aq. calcis,
Zinc. oxidat.,
Cretæ . . . . . āā equal parts.

M. f. pasta.
Sig. For external use.

Nephralgia Simulating Renal Colic.—Malécot, in a recent number of *La France Médicale*, combats the idea that nephralgia occurs frequently without the passage of renal calculi, although of small size. He has observed cases frequently where pains much less severe than those called renal colic were followed by the passage of gravel, especially in the gouty. He believes that small particles of uric acid may accumulate in the pelvis of the kidney, and passing at considerable intervals produce the pains of nephralgia. He believes that greater care in diagnosis would confirm his views.

A Study on the Etiology of Phthisis.—R. W. Philip, of Edinburgh, concludes from a series of experiments upon the sputum of phthisis that (1) in view of the work of Koch, it is impossible to avoid admitting that a causal relationship exists between the tubercle bacillus and the phthisical process. 2. The mere predication of this relationship is not sufficient in explanation of the clinical facts and the generally fatal termination of such cases. 3. The usually received explanations of the *modus moriendi* in phthisis are insufficient. 4. It appears probable that the lethal influence of the bacillus is due to the production thereby of certain poisonous products. 5. Clinical and experimental evidence appears to indicate that the morbid secretions from the respiratory surfaces afford a good medium for the growth of the tubercle bacillus, and, presumably, for the elaboration of such products. 6. Such a product is separable from the carefully selected and prepared sputum. 7. This product is possessed of well-marked physiological properties, being eminently toxic to frogs, mice, and other animals. 8. The toxic properties of the product are, speaking generally, depressant. 9. More particularly they include a marked depressant influence on the heart. 10. This depressant influence seems to be exerted through the medium of the cardio-inhibitory mechanism. 11. The toxic action of the product is more or less completely opposed by atropine. 12. The amount of the product which may be separated appears to bear a distinct relation to the abundance of the bacillar elements present. 13. Absorption of the poisonous product most probably occurs by way of the lymphatic circulation.—*British Medical Journal*, January 28, 1888.

Tertiary Syphilitic Ulceration of the Penis.—Bousquet, in the *Revue Gén. de Clin. et de Thér.* of January 19, 1888, states the following conclusions: Specific ulceration of the penis is of three distinct forms: gummæ, ulcers, and vegetations. The diagnosis of these lesions is sometimes very difficult, and the patient's statements regarding his antecedents are not to be depended upon.

The treatment by mercury and potassium iodide combined is the best diagnostic test. In a patient older than forty, who has ulcerations upon his penis, surgical procedures should not be employed without a trial of medication, regardless of the patient's statements.

The Antiseptic Treatment of Phthisis.—Spencer, in reporting a case of pulmonary tuberculosis, successfully treated by iodoform, concludes that in our treatment and general management of these cases, it is our aim to promote or bring about healing of the damaged lung tissue, and this by means of fibroid substitution. In order to attain this end, we must secure the same conditions and adopt similar measures, if we can by any means compass it, to those we find successful in dealing with suppurations, ulcerations, and the like lesions, in parts exposed to view. To secure these conditions, we should adopt measures for supplying adequate nutrition—that is, adequate anabolism of tissue and the storing of energy—in the body generally, and in the damaged part in particular. We should deal with pyrexia on its own account, as a general and constitutional state, apart from the local suppuration or ulceration (as by quinine). We should bring the lesion under the influence of antiseptic remedies, both by internal medication (as by iodoform), and by external applications (as by inhalations of eucalyptol); and the application and influence of the antiseptic should be complete, continuous, and prolonged.—*British Medical Journal*, January 28, 1888.

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RESPIRATORY THERAPEUTICS.

FOR various reasons the study of respiratory therapeutics has received but little attention from American physicians. During the last few months several investigators have taken up the subject, but they have devoted their efforts almost exclusively to the pneumatic cabinet and its limited application. While it is evident that we cannot command all the apparatus at the disposal of our continental colleagues, we believe that much can be done with simpler means. Quite recently (*Zeitschrift für klin. Med.*, 13 Bd. 2, 3, and 4 Heft.), SCHREIBER has proposed some additions to the therapeutic armamentarium which we believe to be of real value, and think that by calling attention to them we can, perhaps, excite a trial of them by some of the investigators now endeavoring to solve the clinical problems involved.

These improvements consist in the use of a compressor and an elastic corset. The former is made of two plates, of a shape and size to fit the thorax in front and behind, connected by arms which allow of their mutual distance being increased or diminished, and the pressure they exert graduated in that way. The corset is much like an ordinary one, but fastened in front by a strong elastic band by means of which the pressure may be graduated circularly in any level of the thorax.

The value of these instruments can be understood by considering the objections long urged against the use of local treatment in thoracic disease; objections shown by Schreiber in some new experiments to be well founded, but capable of more or less complete suspension by the use of his inventions.

It can be demonstrated that in the ordinary application of medicated vapors and compressed or rarefied air, the diseased parts of the lungs are less exposed than the sound parts, or uninfluenced by the therapeutic attempt. By the use of properly applied compression, however, Schreiber claims that the normal parts of the lung can be entirely set at rest, and that, when this happens, the diseased part becomes at once capable of being acted upon by the medication or differentiation. As in all local treatment, thoroughness of application is of the utmost importance, and the longest possible contact of the remedy with the diseased site must be attained. Not less important is the proper selection of the remedy to be applied, and in estimating the results it must be remembered that no more should be expected of local treatment in the hands of the physician than is warranted by the common experience of surgery. Schreiber claims that in cases of atelectasis and insufficient expansion of the lungs following pleural exudates, severe acute pneumonia, adhesions, and pneumothorax, the value of the compressor can be easily demonstrated.

In catarrh, or ulceration, abscess, gangrene, and tuberculosis, less is to be looked for, and disappointment not so much to be feared from the mechanical as from the pharmacological factors in the method. Schreiber's arguments in favor of circular compression in chronic emphysema and the secondary atelectasis following long-continued coughing in that disease, are plausible, and, according to him, the new methods seem much more likely than the older ones to remove the anatomical basis of the emphysema.

It is evident that the *post hoc* arguments of single observers cannot lead to a definite advance in respiratory therapeutics. Experiments on animals are excluded by the differences in the form of the animal and human thorax. With the pneumatic cabinet and any ordinary atomizer, and such compressors and corsets as are mentioned above, it would be easy to ascertain the value of the improved therapy, and, premising a proper adaptation of medication and method to individual cases, we believe it fruitful of good results.

JOSEF HOFMANN'S HEALTH.

JOSEF HOFMANN, the musical prodigy, is an intelligent-looking boy, ten and a half years of age. He

now weighs sixty-three pounds. When he left Europe for this country, he weighed fifty-six pounds. He began to study music at the age of about five years. The *technique* of the piano was to him unusually easy, and his musical memory was remarkable and did not require much special cultivation. His muscles are well developed for a boy of his age, especially those of the arms and hands. His hands, though of ordinary size, are very thick and strong. He presents absolutely no evidence of any organic, nervous, or other trouble. He eats and sleeps well, and takes four meals a day. His movements and demeanor, when subjected to medical examination, are quick and nervous. He says, himself, that he is fond of playing the piano, but is tired of playing in public. According to his father's statement he now practises very little, and it is not often necessary for him to rehearse before performing in concert. His variations and improvisations on given themes are spontaneous, and the skill which he possesses in this regard is the result simply of what he has learned from hearing music. He has never made a serious study of harmony and composition.

His work at concerts has lately been very considerable, almost excessive; but it is understood that the programmes have been made by his father and his father's musical agent, and that he has often, in Europe, done as much. At his last concert, he played a long concerto by Beethoven, with orchestra, a polonoise with orchestra, a duet with harp, an improvisation, and four solos. He says that he was very much fatigued after this concert, which occurred in the evening, that he urinated freely after each piece, and wet his clothing while performing. His urine has been frequently examined, and has always been found normal. A specimen passed in the presence of physicians in consultation in his case on Monday last, had a specific gravity of 1024½, was acid, contained no albumen, or sugar, presented a deposit of a faint cloud of mucus on standing for eighteen hours, and had 10¼ grains of urea per ounce. He does not and never has suffered from enuresis. He complains that he is much fatigued by travelling. He plays with toys, etc., like other boys of his age, but much of his time is taken up by a certain amount of work which he has to do in public. It is evident that his concerts have become irksome to him, although his intense love of music is undiminished.

As far as it is possible to judge at present from a physical examination, his work in this country has not impaired his general health. Assuming the accuracy of the statements with regard to his incontinence of urine during public performances, this is the only indication of any excessive nervous strain. The stains on his clothing are very slight, although it is said that his mother has observed them for several weeks. It is positively stated that he does not suffer from incontinence when playing or practising at home.

The general education of the boy has been somewhat neglected, but he speaks and writes Polish, which is his native language, German, and French. He is evidently intelligent, and has considerable mechanical talent. He is also fond of drawing and painting. As regards the future, and the prospects of the full and mature development of the great musical genius which Josef Hofmann undoubtedly possesses, prudence dictates that he should avoid any possibility of overwork.

Judging from the existing conditions and indications, there seems to be no sufficient reason why his public performances should not be continued in moderation; but excessive physical fatigue, as in travelling, should be guarded against, and the part which the boy bears in his concerts should certainly be curtailed. He ought not to be called upon to play at any concert more than one serious composition for the piano, or orchestra, one short solo, and one improvisation; and he should have ample time for rest between his public performances.

It should be borne in mind, also, that Hofmann is no ordinary child. His performances are not merely mechanical displays of technical skill; but they involve a condition of nervous exaltation which is evident enough from the poetic and artistic feeling with which he interprets musical compositions of the highest order.

FATAL POISONING BY QUININE.

Death so rarely occurs as the result of the ingestion of this drug in large amount that the paper of Husemann, in the *Therapeutische Monatshefte* for January, 1888, is of great interest. A number of the text-books on materia medica and therapeutics state that no deaths are reported, and it has been generally supposed that the reason for this was the fact that just so soon as the excess of quinine reached the small intestine it was precipitated, and so discharged with the feces. It is evident, too, that the irritant effects of large amounts of quinine are liable to pro-

duce not only vomiting but purging, both of which actions would aid in the recovery of the patient.

Death is, of course, readily produced by quinine, if given hypodermatically, and the early symptoms of the poisoning are so familiar to every one as to need no mention here. It will be remembered, too, that where death is produced great meningeal and cerebral congestion is always present, with, in some instances, hemorrhages into the middle ear, the blood dark and readily coagulable, and preceding death, in rare cases, a peculiar condition is developed in which the animal beats its head constantly on the floor as it lies on its side.

The three cases themselves, as recorded by Husemann, are taken from a paper by Kinner, of St. Louis, and but two of them were fatal. The salt was the sulphate, and was prepared by William Warner & Co., of Philadelphia. In the first case a child of three and a third years swallowed about twenty-five two-grain sugar-coated pills, shortly afterward complained of headache, vomited, passed into a condition of stupor, and this was followed by death in about one and a half hours after the taking of the drug. In the second case a girl two years old took from eight to ten two-grain pills, and was given an emetic, but died, in about two and a half hours, with rigors and a convulsion. In the third case a somewhat corpulent woman of sixty years, with intermittent fever, took upward of one hundred grains, and was found by Kinner with a pale, cool skin bedewed with sweat, and suffering from dyspnœa. The pulse was small and feeble. Coffee and whiskey were given freely, and recovery took place, although severe ear-ache followed the next day.

The treatment of such a condition resolves itself into the treating of circulatory disturbances, which are always great, owing to the depressing effect of quinine on the heart, by the use of cardiac and also of respiratory stimulants; the use of tannic acid to form a tannate, to be followed by a mild purge, and the maintenance of bodily heat.

Dr. Edward Jackson has been elected Professor of Diseases of the Eye at the Philadelphia Polyclinic.

At Waldeck, Germany, a law has been adopted forbidding the granting of a marriage license to any person who has become addicted to alcohol.

Professor Kussmaul, after a long and brilliant career, has retired from the University of Strassburg, where he has held the Directorship of the Klinik for Internal Medicine. Professor Naunyn, of Königsberg, has been invited to succeed him.

At a recent meeting of the Clinical Society of New York, Dr. F. H. Hartley gave the history of a case of supernumerary arm, in a boy about ten years of age. The third arm is on the right side of the trunk, and is quite completely developed, but it has no scapula.

A wooden case, containing a complete outfit of surgical instruments has recently been discovered at Pompeii. Many of the implements are said to bear a very close resemblance to those used at the present day.

In Corea, according to the *Missionary Review*, an American lady, Mrs. Dr. Ellis, is the physician to the Queen, and has apartments in the royal palace. Her salary amounts to $18.000 per annum.

Dr. Lilian Horton, a graduate of the Chicago Woman's College, has just sailed from San Francisco to take the position of Assistant Physician to the Queen and Physician in charge of the Hospital for Women.

The Medical Jurisprudence Society of Philadelphia has elected the following officers for the year 1888:

President.—Charles K. Mills, M.D.

Vice-Presidents.—John A. Clarke, Esq., and Henry Leffmann, M.D.

Secretary.—F. X. Dercum, M.D.

Treasurer.—Paschal Coggins, Esq.

Recorder.—G. Milton Bradfield, M.D.

SOCIETY PROCEEDINGS.

THE PHILADELPHIA ACADEMY OF SURGERY.

Stated Meeting, February 6, 1888.

The President, D. Hayes Agnew, M.D., in the Chair.

Dr. W. W. Keen reported a case of

OMPHALECTOMY FOR STRANGULATED UMBILICAL HERNIA.

(See page 205.)

Dr. Hunt asked if Dr. Keen had looked up the mortality following this operation. He had not seen many cases, but his personal experience is that the prognosis in operations for strangulated umbilical hernia is bad.

Dr. Gross understood that Dr. Keen excised the opening simply for the reason that he could not bring the edges together.

Dr. Keen said the operation was done purposely. He had decided that if he did operate this would be the operation which he should perform.

Dr. Gross asked if he would then prefer this operation to that of freshening the edges and bringing them together?

Dr. Keen stated that he should prefer it.

Dr. Gross remarked that the operation for strangulated umbilical hernia by freshening the edges and bringing them together is not an uncommon one. He had references to a good many cases, but they have not a very good prognostic import. He recently had a letter from a physician who, in a case of strangulated umbilical hernia in a woman, had cut down, reduced the hernia, and sutured the ring. The woman died, and he was subjected to the annoyance of a suit for malpractice. He wrote to him for his opinion. He told him that he had pursued the proper course. It so happened that at the same time he saw in a foreign journal the report of three cases of the same operation, which he sent to him, and he was acquitted.

In operating in cases of strangulated umbilical hernia, he saw no reason for removing the opening or excising the median line, if the same thing can be accomplished by freshening the edges of the ring. On the other hand, he did not know that there are any objections to the procedure.

Dr. J. M. Barton recalled three cases, two of which recovered and one died. In one case, he succeeded in freshening the edges and bringing the wound together. In both of the other cases this was utterly impossible, the abdominal walls being very fat and from two to three inches in thickness, within this fat the hernial sac had burrowed laterally, so that though its contents would fill a twelve ounce graduate, it did not elevate the skin. The description of the contents which had been given by Dr. Keen would apply perfectly to his cases; a mass of omentum folded up like the leaves of a rose, and in the centre of the mass a small knuckle of intestine. In another case he freshened the edges, but he could not pass the stitches on account of the depth of the wound and the portions of omentum in the way. He broke a needle or two before giving it up, and then closed the wound by bringing some of the omentum over the opening and fastening it; this case proved fatal. The third case occurred in the Jefferson Medical College Hospital. He operated and the woman was relieved, but in a few months she again had strangulation, and was operated on by one of his colleagues. She recovered from the second operation also.

If in the future he should have difficulty in bringing the edges of the hernial opening in apposition, he should adopt the method brought to their notice by Dr. Keen. If it were possible in performing the operation to make the section through all the tissues except the peritoneum, and permit this to fold, he thought it would slightly lessen the risks.

Dr. W. W. Keen said that an examination of the literature verifies the assertion that the rate of mortality is very high. He thought that for this very reason omphalectomy is rather to be chosen on account of the harmlessness of abdominal section at the present day; and although here complicated by hernia, yet at the same time, unless the condition of the intestine be very bad, it seemed to him that the rate of mortality should not be much higher than in ordinary laparotomy. In almost all cases of laparotomy there is some complication which adds to the dangers of the section itself. He quite agreed with the statement of Dr. Musser, that it would have simply been a mechanical impossibility to freshen the edges of the opening and bring them together. As in the case alluded to by Dr. Barton, he found during the operation that the thickening felt for two fingers' breadth around the umbilicus, was due to enlargement of the cyst in the wall of the abdomen.

Another reason for choosing this operation in cases of hernia, is to prevent the return of the hernia. In one of the three cases reported by Dr. Barton, the hernia returned. If omphalectomy is done, the return of the hernia is rendered impossible. He had a firm belief that the mortality will be less than in ordinary herniotomy followed by excision or ligature of the sac. Cutting operations limited to the hernia itself, without opening the peritoneal cavity, without any attempt at removal of the umbilical opening, have already been done in several cases with greater or less success.

OSTEOGENIC POWER OF BONE CELLS.

Dr. Charles B. Nancrede, in presenting a specimen, remarked that a great deal of attention has of late been directed to the question of the osteogenic power of the medullary cells. He did not wish to detract from the value of the observations of Dr. Macewen, but he should like to claim for America the priority in the recognition of the osteogenic power of the bone cells. So far back as 1871, it was so well known, that Eve relates in his *Rare Surgical Cases*, that non-professionals on the frontier posts were accustomed to perforate the external table of the skull with an awl in many places in cases of scalping. Over twenty years ago he saw Prof. Agnew resort to the same procedure in case of an injury to the head. The operation succeeded, but the patient, however, died from some encephalic complication.

In 1883, when he was preparing the section on Head Injuries, for the *International Encyclopædia of Surgery*, he called attention to this matter, and mentioned this case. Six months later a patient was brought to the Episcopal Hospital with his arm injured by a calendering machine, in which there are two rollers, one hot and the other cold. The hot roller was applied to the posterior surface of the arm producing a slough of the greater portion of the skin of the forearm, including the muscles and some of the tendons. These were stripped off in a dead state from two-thirds of the circumference and from two-thirds of the length of the ulna. It occurred to him that it would be a good idea to see if the formation of bone would not be facilitated in the ulna by drilling into the medullary cavity of the bone. He drilled a good many holes into the ulna, having to go at least three-sixteenths of an inch before bleeding commenced. The ulna which was secured was very substantial, and more like an uninjured ulna than if left to nature. In a few days granulations sprang up from the ulna and fused with the granulations from the soft parts, and in course of time this fragment was separated.

There are some bones in which we should avail ourselves of the osteogenic formation of the medulla, and there are some in which no such attempt should be made. There are not so many medullary cells in the inferior maxillary as there are in the diploë, so that we may take

out a portion of the skull and have the bone restored; but in the case of the lower jaw, if a piece of the outer plate is removed and then replaced, it is unlikely that the graft will be successful.

DR. KEEN said that the remarks of Dr. Nancrede, with reference to the behavior of different bones, are well illustrated by a case recently under his care. Following the practice of a number of surgeons with reference to the bones of the skull, and also with the view of closing up the canal of the inferior dental nerve in a case of resection of the inferior dental nerve for persistent neuralgia, he lately replaced the buttons of bone that he had removed. Immediately after removal they were placed in a warm solution of carbolic acid, and so preserved until replaced. For about ten days they did perfectly well; then symptoms of irritation appeared, and in four or five days became so severe that he was obliged to open the wound and remove the pieces of bone; after that the case did well. He thought that this procedure was worthy of a trial; but he would scarcely be disposed to try it again. Probably the more compact tissue of the outer layer of the lower jaw, as compared with the cranial bones, may account for the non-viability of the former.

DR. HUNT said that the great practical point to be derived from these facts in reference to bone, is that it will lead to a revival of the old practice which he had always advocated, of not interfering too much, and often making practical resections in cases of compound comminuted fracture. Let the little attached pieces of bone alone, and they may do the work of union. If they separate, take them away. Since antisepsis has become so usual, and the desire prevails to take everything supposed to be irritating away, he had seen many cases of the most beautiful results externally, so far as the healing was concerned, but nothing but an imperfect union inside, simply because much that might have been reparative was removed. That he thinks is a wrong practice.

DR. C. W. DULLES said that *apropos* of what Dr. Hunt had said, he might speak of the case of a little girl, three years old, who was run over by both wheels of a passenger car. He saw her in the middle of the night at the Presbyterian Hospital. He examined the case thoroughly, and considering the tender age of the patient, and the fact that the operation called for, if any were necessary, was amputation, and that children have better chances of recovery than adults, he decided that he would give the child the chance of recovering with her leg instead of that of dying without it. The case was afterward under the care of Dr. De Forest Willard. To make a long story short, the child never had any pain or fever, and made an uninterrupted recovery.

Shortly after this, he saw another little girl, five years of age, who had her thigh caught between a heavy piece of timber and the corner of the curbstone, producing a compound comminuted fracture just above the knee, so close that it was impossible to say whether or not the joint was implicated. In this case also he decided that it was proper to give the child a chance of living with her leg. This case was afterward under the care of Dr. C. A. McCall. There was some separation of fragments of bone, and it was several months before the child was entirely well, on account of sloughing of the soft parts, the result of the contusion. She, however, eventually recovered entirely, with some little malposition of the lower part of the leg.

He mentioned these cases partly to enforce what he considered the very sensible remark of Dr. Hunt, and because he too thinks there is a temptation, on account of the facility which antiseptic methods afford, to remove more than there is any necessity for. It would frequently be a good thing to give nature a chance to recover and let her cast off what she cannot deal with.

DR. NANCREDE said that the same rules hold good with reference to primary, secondary, and tertiary sequestra under antiseptic as under other methods of treatment. He thought that we are not in the habit of removing any more fragments than formerly. If a fragment has no connection with the soft parts it may indeed act as a foreign body, but after Macewen's experience he should be inclined, instead of removing a fragment, to take it out and cleanse it if necessary, and then replace and secure it in some way. He thought that there is no difference under the antiseptic methods as to the removal of fragments, except where it is necessary to secure drainage, and this can be usually accomplished without any serious sacrifice.

He had treated many cases of compound fracture under the antiseptic method, and had seen no difference in the method of union except that we do not have fever and other troubles.

Dr. HUNT said that he meant no attack upon antisepsis. It secures beautiful results. He would have the cases treated by antiseptic methods, but at the same time he should let the attached fragments remain to do their work.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, February 16, 1888.

THE PRESIDENT, A. JACOBI, M.D., IN THE CHAIR.

THE CARE OF THE PAUPER INSANE.

DR. SAMUEL SEXTON presented a resolution endorsing the bill prepared by the State Charities Aid Association regarding the care of pauper insane in State hospitals, and recommending its enactment by the Legislature. It provides that the State shall be divided into as many districts as there are State hospitals for the insane in the State; that there shall be erected on the grounds of each State asylum a sufficient number of buildings of moderate size to accommodate all the pauper insane of the district in which it is situated; that there shall be a uniform charge of all State asylums to the different counties not exceeding $1.50 *per capita*, per week; that after the completion of the buildings provided for in it it is the intent and meaning of this act that no insane shall be kept under county care within the counties embraced in it (New York, Kings, and Monroe counties are excepted from its provisions); that the State shall pay all expenses incurred beyond the rate of $1.50 *per capita* per week for the support of the pauper insane; and that the sum of $500,000 be appropriated for carrying the act into effect.

Those members of the State Charities Aid Association who are as familiar with the management of the State hospitals as they are with that of county poor-houses, find themselves obliged to acknowledge, in accordance with universal testimony, that the care furnished the insane by the State is mostly superior to that furnished by the counties. They know also that the counties do

not propose to give the same character of care to their pauper insane as that given by a State hospital, with its staff of alienist physicians always in attendance, its schools for training nurses, its larger force of attendants, its various organized systems for occupation, instruction, and amusement. This is impossible of attainment for any county at a weekly cost per capita of $1.50. The expense of new or improved county buildings, and of a larger number and higher grade of attendants, which an advanced and enlightened public opinion now demands for the care of the insane, these two treatments alone—irrespective of maintenance and medical treatment—will impose a heavier burden on the taxpayer of the county than the additional increase of his State tax required to perfect the system already established by the State.

In seconding Dr. Sexton's resolution, Dr. C. R. Agnew said that for thirty years he had been interested, with others, in the amelioration of the condition of the pauper insane in the State of New York, and that the first result of the agitation of this subject had been the establishment by the State of the admirable Willard Asylum. Later those at Binghamton and Poughkeepsie had been started. The opening of these institutions had withdrawn a considerable portion of the pauper insane from the county poor-houses. Now, however, an effort was being made to establish county asylums for the insane. The chief reasons alleged for this measure were the saving, to a considerable extent, of the cost of the transportation of insane patients, and because the cost of maintenance in the State hospitals was unnecessarily great. One of the counties undertakes to care for its insane at a cost not to exceed 97 cents per head per week, and another of $1.19. At the Willard Asylum, where the number of inmates is nearly 2000, the expenses cannot be reduced below $2.50 per head per week; but this included the best scientific care by expert physicians and specially trained nurses, the amusement and intellectual training of the patients, and their employment in the workshop and on the farm connected with the establishment. It is a fact, also, that some of the counties have tried the experiment of having their own insane asylums, and unsuccessfully. Thus, Rockland County erected one at an expense of $20,000, and it has now been abandoned. If the pauper insane are cared for by the counties they will be under the charge of the Supervisors and Superintendents of the Poor, and these men, besides knowing nothing of the proper care of the insane, are altogether too close to the taxpayers. This class of cases can, in fact, only be properly taken care of in an institution where there is a Board of Managers which is directly responsible to the State, and where everything is done under the blaze of public scrutiny; and in the State hospitals he believed that the most enlightened modern treatment of the insane was carried out in as thorough a manner as possible.

The resolution was then unanimously adopted.

Dr. H. Seibert read a paper on

Cholera Infantum and the Weather.

Under the term cholera infantum he said that he referred to all cases of acute gastro-intestinal catarrh in children under five years of age. The paper was based upon observations made during a period of ten years, from January, 1878, to January, 1888, in the children's department of the German Dispensary, and was illustrated by a large number of charts. In a similar manner, he said he had endeavored to point out the relation of fibrinous pneumonia to the weather in a paper published in the *American Journal of the Medical Sciences* in 1882. The total number of cases of acute gastro-intestinal catarrh treated at the dispensary during the ten years referred to was 8036. As was naturally to be expected, the greatest number of cases occurred during the summer months, and the fewest in the winter months. Thus, in the ten Julys there were 2443 cases, and in the ten Augusts 1524 cases; while in the ten Februarys there were only 117 cases. The monthly averages, however, were simply guides in the present inquiry, and it was not enough to take these alone. His statistics, as well as those of the Health Department, showed that the disease exists all the year round, even in the coldest weather, and that the proportionate mortality is just the same in cold as in hot weather—about one case in every four proves fatal.

It is a somewhat remarkable fact that the number of cases and deaths is always much greater in the month of July than in August. Thus, during the ten years the number of deaths reported in the city of New York in July amounted to 12,428, and those in August only to 6205. In July, 1881, when the mean temperature was 80°, the number of cases treated at the dispensary was 290; in August of the same year, when the mean temperature was 82°, the number of cases was 223; and in September, when the mean temperature was 87°, the number of cases was 137.

During the summer months it was found that the number of cases and of deaths bore no relation whatever to the rise and fall of temperature, and the same was true as regards the range of humidity; so that warm moist weather does not predispose more to the disease than warm dry weather. Dr. Seibert said that he had also made a very thorough investigation of the effect of light and heavy rainfall; but totally without result. Previous to this it had been a favorite belief with him that want of water on the upper floors of tenement-houses was a somewhat important factor in the causation of summer complaint in the city. Local rainfall also had no effect; and the same was true in regard to the velocity of the air-current. Six years ago he said he had first pointed out the necessity of careful study of details, rather than of general averages in connection with such subjects as this.

As yet it is a disputed point whether direct heat is capable of causing the disease in question, and he has made a special study of all the hot days in the ten summers (when the temperature reached 85° or higher), According to the prevalent opinion, the months containing the greatest number of hot days ought to have the greatest number of cases and of deaths; but he has found no evidence supporting this idea. Thus, in the last two weeks of June, 1880, there was a large proportion of these hot days, and in the same period of 1887 there were but few of them; yet the number of cases was just about the same in both of the fortnights mentioned. Again, in July, 1881, when there were but few hot days, there were 290 cases; while in July, 1887, which was considerably hotter, there were only 196; a ratio of 3 to 2. In July, 1884, the temperature never reached 90°, there were but three days when it went above 85°, and but eight days when it went above 80°, yet there were 266 cases; while in August of the same year, which was

a much hotter month, there were only 156 cases, or about one-third less. The difference in mortality in the city during the two months was even more marked; the number of deaths being 1109 in July, and only 633 in August. Yet this July was made up for the most part of what is usually regarded as very healthy weather; little excess of heat, frequent showery days, and many days with strong westerly breezes.

How, then, are we to account for the fact that in the warm months there are always such a large number of cases? It is evident, from the facts just pointed out, that *hot* weather is not necessary for the production of the disease. In regard to *warm* weather, however, the case is different, and the statistics collected showed that in the early part of the warm season, as soon as the minimum daily temperature reached 60°, and this continued for a few days, an increase in the number of cases of acute gastro-intestinal catarrh was noticed. Furthermore, if the minimum daily temperature remained above 60° for a number of days, say a week or more, it was noticed that the disease became epidemic; and this, no matter how high above 60° the temperature might go, whether it was 75°, 80°, or 85°. These facts were found to be true in every one of the ten years which the statistics embraced.

The reverse was noticed at the close of the warm season in October, the month of departure. During the first half of the month the minimum daily temperature usually reached 60°; but in the latter half, when colder weather set in, the end of the epidemic occurred.

An examination of every summer month, and of every day of each month during the ten years, had led him to the following conclusions:

First. Hot weather, either dry or moist, is not necessary for the epidemic appearance of acute gastro-intestinal catarrh.

Second. Warm weather, either dry or moist, showing a minimum daily temperature of not less than 60°, brings on the epidemic every year, irrespective of the maximum daily temperature.

Third. The disease loses its epidemic character as soon as the minimum daily temperature falls below 60°, as in October.

Fourth. Therefore, this disease cannot be brought about by the direct effects of high temperature upon the child's body.

Dr. Seibert then went on to say that the lowest temperature of each day is reached during the night; and it is at this time that the milk which furnishes the principal food of so many young children is brought into the city. It is often carried long distances, being jolted about, and absorbing impurities from the time it leaves the car. It is, therefore, only a question of time how far the decomposition of the milk is advanced by the time it reaches the child. It is well known that a low temperature retards decomposition, and Dr. Cyrus Edson, of the New York Health Department, had informed him that, in his experience, he had found that milk usually began to turn whenever the temperature reached 60° or higher. Chief Engineer Birdsall, of the Department of Public Works, had also informed him that he had noticed that whenever the temperature of Croton Lake rose to 60°, or above, there was a peculiar taste about the water, which was, no doubt, due to the decomposition of certain matters contained within it.

As to the point why there are always so many more cases and deaths in July than in August—the difference usually amounting to one-third—it seemed to him that it might be explained by the circumstance that it takes a few weeks, after the onset of warm weather, to arouse fully the tenement-house population of the city to the danger to which their children are exposed from this disease, and to cause them to take the necessary precautions, as regards diet, fresh air, sanitary conditions, etc., for its prevention.

DR. L. EMMETT HOLT quoted some statistics of a Liverpool physician for the five years ending with 1883. In one of these years the mortality amounted to 347 in July, and 969 in August. The average temperature of July was 58.9°, and of August 59.2°; and this would seem to confirm Dr. Seibert's statement, concerning the increase of the disease when the temperature approached 60°. In September, however, when the average temperature was only 55.9°, there were 589 deaths, which, while much less than the mortality of August, was considerably greater than that of July. Still he thought that this might, perhaps, be explained by the fact, which he himself had noticed repeatedly, that a very hot August is apt to be followed by a high mortality in September, irrespective of the degree of heat in the latter month. Very much the same ratio, as regards the different months, was observed during the other years covered by the Liverpool statistics.

Dr. Holt then went on to say that in summer there are different forms of diarrhœal disease in young children, and that he scarcely thought it advisable to class them all under one head. In the production of what is ordinarily known as "summer complaint" he believed that there are four principal factors, viz.: (1) heat; (2) feeding; (3) sanitary conditions; and (4) constitution; and that the most important of these is heat.

DR. J. LEWIS SMITH said that he quite agreed with Dr. Holt that the cases are by no means all of the same disease. He had some cases in the warmest weather in which there was an aggravation of the symptoms resulting from reduction of temperature. The child took cold, and the disease was then apt to assume a dysenteric tendency. He thought there is perhaps a fallacy in comparing summer diarrhœa with the diarrhœa met with in cold weather, as he believed the latter to be a different affection from the former. In the cooler months the causes of the trouble are usually so different that it is unjust to compare the two diseases, although the lesions may be the same. The difference between the two is as great as that between the bronchitis incident to pertussis or measles and idiopathic bronchitis.

It seemed to him also that we might be misled by the number of deaths reported. Thus many of the deaths occurring in August or September might be in children who contracted the disease in the earlier part of the summer. The mortality, as a rule, was somewhat greater in September than in May, although the temperature was usually lower in the former than in the latter month; and the reason was because many of those dying in September had been taken ill in one of the previous months. He had noticed in his own statistics the difference between the mortality in August and that in September.

It could be stated in a general way, he thought, that the disease known as summer complaint is caused by heat; but in what way the heat operates to produce

it is not as yet fully ascertained. It is evident that heat alone is not sufficient for its production, or else the disease would be found prevalent in the country as well as in the city. It must be a fact, therefore, that there are certain causes which are brought into operation by the unsanitary conditions met with in the city in hot weather. How much gaseous exhalations have to do with the causation is not determined. At all events the opinion is gaining ground among the best observers that summer diarrhœa is a microbic disease. It is well known that milk which has begun to decompose has a tendency to give rise to the affection. In Asiatic cholera the causative agency of Koch's bacillus has now been pretty generally accepted, and it is believed that this microbe is received into the mouth and acts as a source of irritation to the intestines by its actual presence, and not by causing decomposition of food. In like manner it does not seem unreasonable to suppose that microbes may act in the same way in some cases of summer complaint.

Dr. A. Caillé said that the investigations of Dr. Seibert had not only confirmed the general opinion that warm weather is an important factor in the causation of summer diarrhœa, but had also brought out a number of interesting new facts. In his opinion decomposing milk is the chief exciting cause of the trouble. While Dr. Seibert was on the whole, no doubt, right, it was his opinion that high temperatures sometimes have a pernicious effect upon the human body, and thus serve to pave the way for some agency which will give rise to summer complaint. It is a fact that children nursed at the breast or brought up upon some of the numerous infants' foods in the market, who never get cow's milk, will sometimes be attacked with serious diarrhœa if allowed to overload their stomachs in warm weather, while they will suffer but little, if at all, under the same circumstances in cold weather.

Two French physiologists made some experiments by exposing animals to a continued temperature of 104°, and the phenomena which they noticed to result from this exposure were (1) increase of nervous excitability, (2) nervous depression, and (3) convulsions, coma, and death; death resulting more speedily in a moist high temperature than in a dry one. The same results had been noticed to be produced in children when the weather was very hot. It was his opinion, therefore, that while high temperature does not directly produce diarrhœa, it does have a pernicious effect upon the system, and under these circumstances any irritating substance would be likely to give rise to diarrhœa. As regards the smaller number of cases of summer complaint, as well as deaths, in August than July, he thought that perhaps one reason for this was that a much larger number of children leave the city in August than in July, while those which remain have the advantage of the numerous fresh air excursions then provided for the poor.

The President said that there is a great difference in the cases observed. The larger number are of a simple catarrhal nature. In others, where there are serous discharges there is a tendency to collapse. In such cases after death the lesions found in the intestines may be very slight, while several of the organs of the body may be in an advanced stage of granular degeneration. He believed that great heat kills by its direct effect upon the nerves and upon the muscular system, including the tissue of the heart itself; the high temperature having the effect of coagulating the myosin of the muscles. Intense heat also has a certain influence on the surface of the body, causing an immense dilatation of the capillary bloodvessels. Insufficient nutrition, particularly of the brain, results from this, and thus collapse is brought about. These are the cases which terminate fatally, and they are liable to be met with in well-to-do families as well as among the very poor. The affection referred to constitutes true cholera infantum. The larger majority of the cases met with, however, are of gastro-intestinal catarrh. He had been much interested in the fact demonstrated by Dr. Seibert's investigations that 60° was the turning-point for this disease, and it was especially noteworthy in this connection that Dr. Edson had expressed the opinion that milk began to decompose, and Chief Engineer Birdsall the opinion that water began to be affected by decomposition also at 60°. In conclusion he made some remarks in regard to the importance of proper feeding.

NEWS ITEMS.

The Illness of the Crown Prince.—The *British Medical Journal* of February 11th states that "We learn by special telegram from San Remo that the Crown Prince's symptoms had become so urgent that tracheotomy had to be done on Thursday morning. We are pleased to say that the operation was performed with complete success. It is natural enough that some alarm should be felt by the public that this procedure should have become necessary. Our readers, however, will no doubt remember that we have more than once hinted that such a contingency was not unlikely to arise, and last week we intimated, as plainly as was possible under the circumstances, that the time was not far off when the operation would be imperatively required. It is quite inaccurate to speak of the Prince's present condition as a 'relapse;' the local symptoms have simply become rather suddenly intensified without any substantial change in their character. The possibility of such an event has been clearly foreseen all along, and it has been obvious for some months past to those acquainted with the facts of the case that tracheotomy, sooner or later, was inevitable. We are in a position to state that all these points were fully explained, a considerable time ago, to the illustrious patient himself, and to his relatives, both in Germany and in this country.

"It may be well to emphasize the fact that the necessity for surgical interference which has arisen does not in the least degree contradict the more favorable reports as to His Imperial Highness's condition and prospects which we have lately been able to give. It is still highly probable that the disease is not cancerous, but obstruction of the larynx, however 'innocent' in itself, is a complication that can only be dealt with effectively by the surgeon's knife. It should be distinctly understood that the operation, when done, as in the present instance, merely as a security against possible accidents in the future, is not only very slightly dangerous in itself, but is one of the most successful in surgery. There is no reason why a man suffering from a disease which obstructs the upper orifice of the windpipe, but does not spread to neighboring parts, should not, if tracheotomy is performed in

time, live out his full natural lease of life. If, at any subsequent period, the passage becomes clear again, the tube can be removed; if not, it may continue to be worn with comparatively little inconvenience or discomfort. With a properly constructed instrument the patient is not only free from all risk of suffocation, but is able to speak with perfect ease and distinctness, and can discharge the duties of life, and take part in most of its pleasures, without trouble to himself or distress to others."

A Four Years' Medical Course at Harvard.—From an examination of the last report of the Harvard Medical School, the *Boston Medical and Surgical Journal* of February 16, 1888, concludes that, in plain words, it appears in the first place that not one-half of those who take the fourth year course apply for the fourth year degree. Secondly, the percentage of rejection at the examinations for the fourth year degree is so large, that prudent students may well prefer to take the third year degree at the regular time, rather than to run the risk of having to fall back upon it after failing to get the fourth year degree. During the past four years, the percentage of rejection for the fourth year degree has been 35 per cent., while the percentage of rejection for the third year degree has been only 16½ per cent. Thirdly, it is evident that there have been two sorts of students in the fourth year class: one sort, the most promising men in the school; the other sort, men who need four years of study in order to obtain the third year degree. The number of examinations which the student was expected to pass at the end of the fourth year has been unreasonably large.

The experiment, as a whole, is not yet successful; and such inferences as can safely be drawn from it do not encourage the hope that a fourth year of study can soon be demanded of all candidates for the degree of Doctor of Medicine, unless, indeed, the school shall receive a special endowment to enable it to take this costly step.

Three Years' Study Obligatory in California.—At a recent meeting of the Board of Managers of the Medical Society of the State of California the following resolution was unanimously adopted:

"*Resolved*, That on and after April 1, 1891, the Board of Examiners of the Medical Society of the State of California will not grant certificates to practise medicine on diplomas issued after that date, by colleges which do not require that all candidates for graduation shall have studied medicine not less than three full years, and shall have attended not less than three full regular courses of lectures, delivered during three separate years."—*Sacramento Medical Times*, February, 1888.

The New Pasteur Institute.—The buildings (*Figaro* states) are already rising over the space of 10,000 *metres* which the Institute is to cover. Two principal pavilions will contain the laboratories, the amphitheatres, and consulting rooms. There will be no hospital, for, we are told, the Institute "is not a *maison de santé*, but a school." On each side, uniting the pavilions, will be stables, fowl-houses, kennels, and rabbit-hutches for all the animals required for the various researches, which will not be confined to rabies, but will embrace all contagious diseases. Only one department will be devoted to rabies, at the head of which will be M. Grancher, who is styled "Apostle of the Religion of which M. Pasteur is the Prophet." The second department will be devoted to *inoculations charbonneuses*, swine measles, and calf-vaccination; the director being M. Chamberland. The third will be entirely private, devoted to researches in bacteriology, under M. Dudaux; and the fourth to medical bacteriology, under M. Roux. The building is calculated to cost a million of francs, and the remainder of the funds subscribed will endow the institute, when opened next June, with something like sixty thousand francs (£1500) a year.

The Archives de Tocologie.—On January 1, 1888, this journal passed from the management of Prof. Depaul to that of Dr. Auvard, of Paris.

Fees for Expert Testimony.—The Texas Supreme Court has just decided a case of great importance, not only to the physicians of Texas, but to the entire profession. Dr. J. B. Fearns, of Garrison, sued Nacogdoches County, in a lower court, for payment for expert services as a witness in a homicide case. The amount involved was small, but Dr. Fearns deemed the principle of so great importance that he submitted to the necessary legal expenses to test it. The lower court decided against Dr. Fearns, but the Supreme Court reversed its decision, and directed the payment of his bill.—*Medical Standard*, February, 1888.

Programme of the French Surgical Congress.—The third session of the French Surgical Congress will be held in Paris, from March 12th to the 17th, in the large amphitheatre of the Administration de l'Assistance Publique, 3 Avenue Victoria. Professor Verneuil will preside. The following questions are down for discussion; 1. The Treatment of Gunshot Wounds of Viscera. 2. The Value of Radical Treatment of Hernia as regards Permanent Cure. 3. Treatment of Chronic Empyema. 4. Recurrence of Malignant Growths after Operation: its Causes and Prevention. Surgeons wishing to take part in the Congress are requested to communicate with the General Secretary, Dr. S. Pozzi, 10 Place Vendôme, Paris. The subscription is 20 francs.—*British Medical Journal*, February 11, 1888.

A Parasitic Fœtus.—In the discussion which followed the exhibition of Mr. Owen's specimen of an anomalous sacral appendage, at the Pathological Society, Mr. Baker and Mr. Bland Sutton expressed their opinion that the appendage ought to be considered as a parasitic fœtus. Mr. Sutton also referred to an example of this monstrosity which is at present being exhibited in London. The subject, "Laloo," is a lad from Oudh, aged seventeen years, about five feet two inches in height, and of a very dark complexion. His expression is pleasing and intelligent, and his disposition very cheerful. There is no family history of any monstrosity. The mass, which appears to be of, at the most, very limited sensibility, is attached chiefly to the epigastric region. It consists of the structures forming the shoulder-girdle, including the integuments, which bear a pair of nipples; and of a second part, including the buttocks and lower extremities. The pubes is hairy, the penis well-formed, and its glans uncovered, urine occasionally passing from it. The anus appears to be imperforate. The arms are very long, like those of an American spider-monkey (*Ateles*); the but-

tocks form a projection rather bulkier than a cocoanut; the left foot hangs down nearly as low as the knee. Both extremities present numerous deformities, which cannot be satisfactorily described in this paragraph. Next to the fact that there is a large parasitic fœtus dependent from the epigastrium, the most singular feature of the case is the complete separation of the shoulder-girdle from the lower parts of the parasite. The two parts appear to be separately united to the boy's trunk by freely movable joints; they are invested by a common integument, and divided from each other by a deep groove. We understand that Mr. Sutton and Mr. Shattock examined "Laloo" on Wednesday, for the purpose of furnishing the Pathological Society with a full report of the case.—*British Medical Journal*, February 11, 1888.

Women Physicians among the Musselmen.—Three Russian women, graduates in medicine, have established a hospital for diseases of women at Koschan, Persia. Their experiment has proved completely successful. They are reported to have been consulted by 15,000 patients in the last ten months.

The Polyclinic of Humbert I.—On the 19th of January, 1888, the corner-stone of the new Roman polyclinic was laid, in the presence of the King and Queen, and a large throng. This institution is designed to represent the "Alliance of Medical Science and Civil Charity."

"Rations of Iron" for Soldiers.—Eiserne Portionen (rations of iron) is the name given by the *Militar Wochenblatt* to the canned provisions which the German soldier is now compelled to carry in his knapsack or haversack, not for immediate consumption, but for use at those times when his command is removed from the base of supplies or the quartermaster's department is short. It says: "These victuals of iron are, during war, to be used on the evening preceding a great battle; or, better, when, the army making a sudden change of front, the convoys are for a day or two retarded." Much of this canned provision is put up in America, and is said to be both better and cheaper than the German. The seventh corps (Westphalian) commanders have recently experimented with canned chocolate and cocoa, which, though seemingly light refection for a marching column, has, on the contrary, been found excellently adapted.—*Scientific American*, Feb. 18, 1888.

A New Name for Antipyrin.—Considering that the compound is not an antipyretic, but a pain reliever, and that its true chemical name, oxydimethylquinizine, is rather inconvenient, M. Nicot, a well-known pharmacist, has proposed for it the appellation *parodyne*, from two Greek words (*para* and *odune*), meaning "against pain." Thus rechristened, antipyrin could be freely prescribed and dispensed without regard to trade-mark rights. French pharmacists feel sore about antipyrin, not so much, perhaps, because it is of German origin, as because a shrewd device has enabled its makers to evade the patent medicine law and enjoy privileges denied to French pharmacists and chemists.—*American Druggist*, February, 1888.

Adulterated Candy.—The *American Analyst* of February 4, 1888, describes the adulteration practised by certain confectioners as follows:

They replace sugar and fine gum with glucose, vanilla with tonka and vaniline, almonds with myrrbane oil, butter with oleomargarine, rose with geranium, and fruit flavors with compound ethers. They "dilute" cocoanut with starch, sugar, and terra alba, and use homœopathic, and therefore harmless quantities of dyes and colors which, in ordinary amounts, are injurious, if not destructive, to the stomach. Of course, they do but little harm by most of these practices. Glucose, tonka, oleomargarine, compound ethers, and saccharated cocoanut are, if in good condition, beneficent rather than otherwise. But it is none the less imposition, humbug, and fraud. Let the confectioners adopt the English statute and stamp on every package all the ingredients their goods contain. If this were done to-day there would be the greatest commotion and the wildest excitement their pleasant industry has ever known.

Perry-Davis's Pain Killer.—The London *Medical Press* reports that the quack nostrum known as Perry-Davis's "Pain Killer" was last week expunged from the Register. The effect of this will probably be that every chemist will now have his pain-killer, and in the multitude the life will be eventually crushed out.

Milk from Sewage Farms.—Dr. Carpenter, of Croydon, denied, during a recent discussion in the Society of Arts, that the milk produced on a farm irrigated by sewage is contaminated or less wholesome than other milk. When he became acquainted with the Croydon sewage-farm, they had difficulty in getting rid of the milk, because of the prejudice against it. But by judicious management the prejudice was worn out. The speaker knew, from personal experience, that the children who took the milk were never troubled with any of those illnesses which were said to be due to bad milk, and there were never any complaints of the milk, which was delivered once a day, becoming sour. That was a proof of its power of being assimilated by the body, and that it was of a perfectly desirable character in point of health, he knew from examination of the families who took it. They had now no difficulty in Croydon with regard to the disposal of their milk from the sewage farm.—*The Popular Science Monthly*, December, 1887.

Cremation in France is in an equivocal position. Its advocates have long urged the passage of a law legalizing this method of disposing of the dead. A law passed Nov. 15, 1887, gives to any adult or minor, who is capable of making a will, the right to dictate the manner in which his funeral services shall be performed, their civil and religious character, and the mode of interment, but the conditions of the different methods of sepulture are to be decided by the municipal authorities. The effect of this last clause is that the operation of the law is suspended so far as cremation is concerned, until a decree shall be passed by the Council of State determining, under what conditions it may be permitted. The friends of cremation have persuaded the city council of Paris to urge upon the government the necessity and importance of immediately making regulations which will allow cremation to be practised. While there is progress in this direction, there is a fear that the cremation experiments recently made at the Père la Chaise Cemetery may retard the advancement of the crematory idea. These experiments have been made with the bodies of persons who had died from smallpox in Paris hospitals, and which had been

uncalled for by friends. The necessities of science require many things which are trying to sensitive feelings; they justify anatomical study and autopsies, and the unfortunate person who has neither friends nor home, may owe the tribute of his body to science for dissection. But these requirements should not exclude the respect due to death. The poor of Paris are asking what utility there can be in these crematory experiments, and they believe that the law which orders débris from operating rooms of hospitals to be cremated should furnish sufficient experimental material. Already the fear of the dissecting rooms keeps many poor persons away from the hospitals, and when the fear of ultimate cremation is added to this, it is probable that the measure will become very unpopular with the poor because of fear, and with the rich because cremation will seem to be a sign of poverty and shame.—*Sanitary News*, February 4, 1888.

The Nurses of the Paris Hospitals.—The laicisation of the Paris hospitals will shortly be complete. The religious staff at the Charité was dismissed a short time ago. The laicisation of the Hôpital Dieu and the Hôpital St. Louis will follow in the course of the year. The laicisation of the hospitals was begun in 1878, with the Hôpital Laënnec. Since that time the Administration of the Assistance Publique has organized a training school for nurses at the Hôpital de la Pitié. The nurses are taken from there to replace the religious nurses, whenever a fresh hospital is laicised. The post of superintendent of a ward is only confided to those who have obtained a certificate at the examinations, proving them competent to undertake such an office. The contract made between the Administration of the Assistance Publique and the religious orders which have hitherto supplied the hospital nurses gave the option to either side to annul the engagement if it appeared advisable.—*British Medical Journal*, February 11, 1888.

Ground-water and Health.—Mr. Baldwin Latham, C. E., declares, as the conclusion derived from eleven years of investigation, that there is generally a parellelism between the conditions of health and the volume of ground-water. The years in which there has been a large quantity of ground-water present have invariably been the healthiest years, while those in which there has been a small quantity have invariably been the most unhealthy periods. As a rule, the lowness of the ground-water indicates the future health, and not the state of health at the particular time of lowness; that is, the unhealthy period, as a rule, follows the period of low water, the degree of lowness indicating the intensity of future disease. In some instances an unhealthy period runs concurrently with the period of low water, but in all these cases there is clear evidence that percolation has begun before the unhealthy period comes on. These results, which are confirmed by observations made at Paris, differ from those obtained by Professsr Pettenkofer, at Munich, in that he there found typhoid fever and low water concurrent; in all other respects they agree with his. There is also clear evidence, derived from experience in England, that the lowering of the subsoil water by artificial means produces a tendency to the development and dissemination of typhoid fever. It is clear, however, to the author's mind, that ground-water itself has no influence, either for good or evil, upon health, but that the lowness or highness of the water in the ground is the index of conditions which greatly influence the health of all communities. We have periods of abundance of water, and periods of low water, with both healthy and unhealthy conditions. Ground-water has been shown by Professor Pettenkofer to be chemically more impure in periods of high water when the conditions were favorable to health than when there is a low state of the ground-water and a condition unfavorable to health. The records also show that we have periods when rain has started into existence malignant diseases; while, on the other hand, we have similar heavy rainfalls accompanied by a high state of public health. The records clearly point out that it is not one circumstance alone which produces disease, but that there are at least three factors concerned in the matter, especially in the case of typhoid fever, viz: the elements which produce disease, such as a polluted state of the ground; the conditions which are necessary for the development of disease, such as a period of dryness of the ground in those regions which water usually occupies, combined with a comparatively high degree of temperature; and conditions which will lead to the spread of the disease, such as the probable influence of a storm or rain in driving impurities out of the ground into our water supplies, or through the instrumentality of ground-air passing into our habitations, and its reception by a population which is in a condition to receive such germs of disease. If any of these conditions is absent, diseases like typhoid do not occur. It has been pointed out by Professor Pettenkofer that in those districts in which the rivers are held up at uniform levels by rains, the conditions are favorable to health, and cholera seldom becomes epidemic. This is corroborated in great measure by the state of health at seaside resorts, which being at the natural outflow for ground-water, and owing to the uniform height of mean tide-level are placed in a condition favorable to health.—*The Popular Science Monthly*, December, 1887.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING FEBRUARY 18, 1888.

Wasdin, Eugene, *Passed Assistant Surgeon.*—Relieved from duty at Marine Hospital, Chicago, ordered to Marine Hospital, Mobile, Ala., February 16, 1888.

Norman, Seaton, *Assistant Surgeon.*—Relieved from duty at Marine Hospital, New York, to assume charge of the Service at Evansville, Ind., February 6, 1888.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING FEBRUARY 18, 1888.

Olcott, F. W., *Assistant Surgeon.*—Detached from the "Minnesota," and ordered to the "Atlanta."

Heyl, T. C., *Surgeon.*—Ordered to the Receiving Ship "St. Louis."

Martin, H. M., *Surgeon.*—Detached from the "St. Louis," and ordered to the "Swatara."

Webster, Charles F., *Assistant Surgeon.*—Ordered to the Receiving Ship "Vermont."

Field, James G., *Assistant Surgeon.*—Detached from the "Vermont," and ordered to the "Swatara."

Whiting, Robert, *Passed Assistant Surgeon.*—Detached from the "Iroquois," and ordered to Coast Survey.

Tracy, Cloner C., *Assistant Surgeon*—Resigned, to take effect immediately.

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ORIGINAL ARTICLES.

A CASE OF LAPAROTOMY FOR RUPTURED UTERUS.[1]

BY HENRY J. GARRIGUES, A.M., M.D.,

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ON January 21st, about 6 P.M., I was requested by Dr. H. B. McCauley to see a patient who had sustained a rupture of the uterus. The history of the case was as follows:

Mrs. M. D., thirty-two years of age, had had six children, two of which were delivered with the forceps, and she had always, as she said, "had a hard time." The last menstruation had begun on April 14, 1887. A few days before her confinement she had a bad fall in the yard.

Labor pains began during the night between the 20th and 21st of January, and Dr. McCauley was called in at noon of the 21st, at which time he found the os about the size of a dollar, the head presenting, and he noticed an extreme left lateral obliquity of the uterus. He replaced the uterus and put on a binder. The pains were quite moderate. At 4.15 P.M. the waters broke, but there was no advance of the head. At about 5 P.M. she suddenly complained of cramps in the left iliac region and began to get fretful and anxious, but gave no symptoms of shock. Dr. McCauley made an examination and found the vagina full of clots with recession of the head. He gave a hypodermatic injection of morphine and brandy, and applied bottles with hot water to her feet. There was very little hemorrhage into the vagina. The pulse was good. She was now examined by Dr. F. A. Baldwin, who ascertained the presence of an opening in the uterus through which his two fingers passed into the abdominal cavity. A medical student had also examined the patient. So far, no antiseptics were used.

The residence of the patient was a tenement house of very low grade. The apartment consisted of a room looking toward the street, used as a kitchen and sitting room, and two small bedrooms, one without any window, the other with one on the staircase. They were so small that the bed went from wall to wall, and only a narrow passage was left between it and the door communicating with the front room. In that nearest to the stairs I found the patient. She looked anxious and sullen, and it hurt her to change her position sufficiently to render an examination possible. Through the abdominal walls a large child could be felt lying to the right of the contracted uterus. After thoroughly disinfecting my hands, I made a vaginal examination and found the superior strait empty, and a large tear in the uterus communicating with the abdominal cavity. The diagonal conjugate measured four inches, corresponding to a true conjugate of three and a half inches.

After having explained to the patient and her friends that her only chance of life was the performance of laparotomy, obtained the consent of the priest, and got the necessary utensils, which had to be borrowed from all the neighbors, brought together, I performed the operation. Dr. H. B. McCauley gave ether, Dr. F. A. Baldwin assisted me, and Mr. Shannon handed instruments and ligatures.

The pubes were shaved, the abdominal wall cleansed and disinfected with soap and bichloride of mercury. An incision about four inches long was made in the median line, reaching down to the symphysis pubis. The first object that appeared in the abdominal cavity was the placenta, which lay between the anterior wall and the contracted uterus. The membranes were yet in partial contact with the inside of the womb, but were easily removed together with the placenta. The child lay to the right and presented the right nates to the line of incision. It was of large dimensions, probably weighing between nine and ten pounds. It was dead and entirely white in consequence of its exsanguinated condition. The abdominal cavity contained about a quart of fluid blood and some lumps of meconium. After the removal of the child we inspected the rent in the uterus. It comprised the whole anterior wall and part of the posterior. It was eight inches long, and ran chiefly in a transverse direction between the thick wall of the body and the thin cervix. At both ends it turned downward, and on the left side it dipped deep down into the pelvis. On this part the tear in the muscular tissue was situated an inch and a half below that in the peritoneum, the latter forming a triangular flap by itself. All hemorrhage had stopped.

We considered the expediency of performing Porro's operation, but the rent went so low down on the left side that it was impossible to form a pedicle below it and fasten it in the abdominal wall. I, therefore, simply sutured the uterus with silk (boiled in bichloride and kept in alcohol). It was quite difficult to reach the ends of the tear. I laid a double set of sutures, some deep ones comprising the whole wall of the uterus, except the endometrium, and, alternately, between them superficial ones only embracing the peritoneum, which was folded in so as to apply one serous surface to the other. As my assistant needed both his hands to make the tear accessible, he could not help me in folding the peritoneum in, and it became, therefore, neces-

[1] Read before the Obstetrical Section of the New York Academy of Medicine, February 23, 1888.

sary to put in as many as thirty-seven sutures. At the left end of the rent four or five sutures through the muscular tissue were entirely covered with the peritoneal flap, which was fastened to the corresponding edge of the part that had remained in contact with the body of the womb, thus forming a kind of *story suture*. The tube of a fountain syringe was let down to the bottom of Douglas's pouch, and the abdominal cavity washed out with plain warm water, until it returned entirely clear. Then the toilette was made in the common way, and when all was clean and dry, the abdomen was closed by uniting the peritoneal edges separately by means of a running button-hole suture of catgut, and stitching the fascia, muscles, and skin together with interrupted silk sutures. Finally, the uterine cavity was washed out with a hot solution of bichloride (1 : 5000) by means of my glass tube,[1] and an antiseptic dressing with iodoform, gutta-percha tissue, and salicylated cotton placed over the abdomen.

The patient lived four days, when she succumbed to peritonitis. This period does not present much of interest. I shall, therefore, only briefly state that a vaginal douche of a two per cent. solution of carbolic acid was given every three hours. Morphine was given hypodermatically in doses of one-fourth to one-third of a grain, repeated frequently enough to keep her free from pain. She took five grains of quinine every four hours. Her nourishment consisted of milk toast, water, and beef tea, and she was given, on an average, about eight ounces of brandy in the twenty-four hours. After the first twenty-four hours her temperature went up and down between 101° and 103° F., and reached 104° F. just before her death. The abdomen was tympanitic, and she vomited once.

She was nursed in a very unsatisfactory way by her ignorant relatives; once a drunken person visited her, and on another occasion the patient herself got out of bed. It was out of the question to obtain an autopsy, or even to become possessed of the specimen in a surreptitious way.

Rupture of the uterus is fortunately as rare an accident as it is a grave one. Dr. R. P. M. Ames[2] quotes the following figures from reports of large lying-in institutions:

Ramsbotham: Royal Maternity Charity, London,	8 cases in 48,996 deliveries	= 1 in 6124
Lehmann: Maternity of Amsterdam,	3 cases in 7,000 deliveries	= 1 in 2333
Guy's Hospital, London,	9 cases in 43,800 deliveries	= 1 in 4867
Total,	20 cases in 99,796 deliveries	= 1 in 4990

Thus there would come only one case of rupture of the uterus in nearly five thousand deliveries. In the last six years, during which I have been attached to the New York Maternity Hospital, there has been only one case in about three thousand confinements. The above is the first one I have been connected with clinically, but some years ago I made a careful macroscopical and microscopical examination of a specimen that came from a patient of Dr. L. L. Bradshaw, and was shown, by Dr. P. F. Mundé, to the New York Obstetrical Society, to which I then was Pathologist.[1]

Still, infrequent as the accident is, it is by far not so much so as might be inferred from the small number of cases published. R. P. Harris, who computes there must occur about three hundred cases of rupture of the uterus every year in the United States, has been able to collect only forty cases for the period of fifty-two years from 1827 to 1879.[2]

The question of treatment being yet to some extent undecided, it would be very desirable if every single case were published, as has been done of late years with regard to the improved Cæsarean section, laparo-elytrotomy, and Porro's operation. As we shall see later, a comparatively large number of cases have been reported within the last few years, and I have thought it might be of some interest to lengthen the list by the above reported case.

From an etiological standpoint, we notice that the patient had already gone through many pregnancies, this being her seventh confinement. Experience has shown that this is the rule. In earlier pregnancies the muscular tissue may possess strength enough to overcome an obstruction before which it succumbs when impaired by repeated gestations. Some authors have advanced the opinion that a healthy uterus never ruptures, but I can, from my own experience, corroborate the opposite view, for in the specimen on which I reported even a microscopical examination failed to discover any abnormality. Another point that perhaps may have predisposed the patient to rupture, is the fall she made a few days before delivery, but as there were no traces of any contusion or other injury, it is not likely that this factor had much to do with the rupture. No ergot had been given, a drug which seems to be very liable to become the cause of rupture. There was a lateral obliquity of the uterus, but that was remedied by Dr. McCauley. The true cause of the accident is, in my opinion, to be looked for in the disproportion between her pelvis and the child to be born. Her conjugate measured about three and one-half inches. This is a moderate degree of contraction if there was room enough from side to side, which I think there was, although the pelvis was not measured in that respect. Four times she had even given birth to her children by nature's sole efforts, although her

[1] See Garrigues, Practical Guide in Antiseptic Midwifery in Hospitals and Private Practice, 1886. George S. Davis, Detroit, Mich. Pp. 94, 95.

[2] Ames: American Journal of Obstetrics, 1881, vol. xiv. p. 374.

[1] American Journal of Obstetrics, 1881, vol. xiv. pp. 403–406.

[2] Harris: Laparotomy for Rupture of the Parturient Uterus. Ibidem, pp. 816–817.

confinements had always been tedious and painful, and twice she had been delivered by forceps.

Most text-books lay down very precise rules for the different obstetrical procedures only based on the diameter of the pelvis, but when we think of the difference in the size of the fœtus, it becomes almost ridiculous to cavil about a quarter or half an inch difference in a diameter. Living children vary from two to sixteen pounds or more, while there is at best half such a difference in the length of the diameters. The real question the accoucheur has to weigh in his mind is the *proportion* between the child and the pelvis. One of the most difficult confinements I ever had and which was finished with great trouble by means of the cephalotribe and the cranioclast after perforation of the head of the living child, occurred in a lady with an entirely normal pelvis.[1] In the present case, the patient had been able to give birth to six children, but then there came one of unusual size, weighing at least nine pounds, and then the obstacle presented by her narrow pelvis became unsurmountable, and, no other outlet being furnished, her uterus gave way.

The symptoms seem to have been very little marked in this case, as they often are. Indeed, nothing was noticed until she began to complain of pain in the left iliac region, corresponding to the place in which the destruction was most pronounced.

The prognosis in these cases is very bad. The child almost invariably dies, and few mothers escape. It is true Joly has found 100 recoveries in 580 cases;[2] but this gives, of course, an entirely erroneous idea of the true mortality, the successful cases being much more likely to be reported as curiosities or as advertisements, than the fatal ones. The chief cause of death in the mother is hemorrhage, and the second in importance, peritonitis. The child dies, likewise, in consequence of loss of blood, or insufficient supply of blood, or strangulation of important parts in the contracting rent. In our case the appearance of the child showed that it had been drained of its blood. As to the mother, her general condition was favorable. She seemed to be a strong, healthy woman, and there were no signs of shock at the time of the operation. On the other hand, the poor residence, the insufficient nursing, the lack of intelligence in the patient, the omission of antiseptic precautions before the operation, the extension and irregularity of the tear were all circumstances that contended against a favorable issue.

The treatment to be pursued in cases of rupture is a question of the very greatest interest, which, in my opinion, cannot yet be settled. Let us first examine the earlier stages of our case, when a rupture might, perhaps, have been prevented. It would have been impossible to drag this large head through the contracted pelvis by means of the forceps. Turning might have had a better chance, and if it had been tried, and the child's head could not be brought down, it would most likely have come after perforating and emptying the cranium. Perforation of the presenting head of the living child would not have been allowed, the patient being a Roman Catholic, under absolute control of her priest. Contemplating the case in the light of the great success of the improved Cæsarean section, that would have been the operation called for. In that way, I think, both mother and child might have been saved.[1] But there is hardly a doubt that such a proposition would have met with decided protest from the patient and her friends, who would have been guided by the fact that she had borne six children *per vias naturales*.

At the time I saw the patient there could be no doubt about the line of treatment to be pursued. Laparotomy was her only chance. The uterus was entirely empty, the child and the after-birth were in the abdominal cavity, the child was large and the pelvis was small. To attempt delivery through the normal passage would have been sheer madness. To leave her alone was to devote her to sure death within a few hours, or, at best, a couple of days.

When we saw the extension and irregularity of the rent and realized how difficult it would be to suture the lower parts of it, we consulted about removing the whole uterus, and I think I would have done so, if I could have lifted the uterus sufficiently to fasten the pedicle in the wound, but this being found impracticable I undertook the tedious work of patching the torn parts together as best I could, and by using a large number of sutures I succeeded in forming a good line of union. In a case reported by Dr. C. L. Ward[2] there was found a similar peritoneal flap as in my case. He removed it, so as to avoid putting a double line of sutures. Since his patient died as well as mine, the issue cannot be used to decide which procedure is preferable. If we work with aseptic material as I did, I do not see any objection to the double row of sutures, whereas it seems less good to me to leave a large surface of the uterus denuded of its peritoneal covering.

For cleaning a cavity so large and with such power of absorption as the peritoneum I believe plain water is about as good as anything, but others have used bichloride (1 : 10,000) with impunity.

If now we leave out of consideration our particular case and speak about rupture of the uterus in general, there are two chief ways of delivery, the

[1] Reported in Amer. Journ. Obst., 1885, vol. viii., p. 410.

[2] Charpentier: Traité des Accouchements, vol. ii. p. 335. Paris, 1883.

[1] Since this was written, I have performed Cæsarean section in a case of generally contracted pelvis. The mother and the child are in excellent condition.

[2] Amer. Journ. Obst., 1878, vol. xi. p. 587.

one through the parturient canal, the other through the abdominal wall. The third method, that of expectation, or of doing nothing, has had its day, but since the statistics have shown that a recovery under those circumstances is so rare that it comes near being miraculous, this so-called method may be left out of consideration. The way in which nature saved the patients was by the formation of a cyst around the fœtus in the peritoneal cavity, in which it remained a harmless tenant for years, or by suppuration and the expulsion of the fœtus, either entire or piecemeal.

Ever since Trask, of Astoria, N. Y., published his memorable collection and digest of 417 cases[1] of rupture, laparotomy has been regarded by the most advanced obstetricians as the best operation. A similar conclusion was reached by Jolly, of Paris.[2] Trask's work was continued in 1881 by Dr. Ames, of Philadelphia, who tabulated 100 new cases in an excellent paper, and concluded by saying, "I would then strongly urge upon the profession the advisability of performing the operation of gastrotomy after every case of rupture, no matter whether the child had escaped into the peritoneal cavity or not." A similar appeal had already been addressed to the profession a year before by one of its Nestors, the indefatigable R. P. Harris, of Philadelphia, who followed his usual plan of first searching the records of cases in the United States, and then of securing the unpublished ones by correspondence all over the land, in which way he collected forty cases.

A priori there can be no doubt about the superiority of laparotomy over all other methods, and the innocuousness of the operation in itself when performed aseptically has become an everyday experience, but such questions cannot be settled from an aprioristic standpoint, and the statistics are misleading on account of the much greater tendency to publish successful than fatal cases.

Off and on we read yet about cases in which the child was drawn back from the peritoneal cavity, into which it had escaped, and delivered *per vias naturales*, with good result for the mother. In later years, the cavity of the peritoneum has in such cases been washed out with carbolized water and a drainage tube placed through the rent; but even before these methods were known, recovery sometimes took place in cases of this kind. In my opinion, we must be largely guided by the proportion between the size of the child, the rent, and the pelvis. There are many cases on record in which the child was easily removed by turning, but in one like the above reported it would have been impossible to do so without resorting to craniotomy of the aftercoming head, or other tedious operations, which certainly would have imperilled her life more than laparotomy.

In the *American Journal of Obstetrics* I have found ten American cases of rupture reported since Dr. Harris's article was published, namely:

1. Uriah H. Farr, Martinsville, Ind. Head in abdomen; legs seized in uterus, extraction. Death from peritonitis. (1883, p. 389.)

2. G. E. Goodfellow, Tombstone, Arizona. Extraperitoneal; breech presentation; blunt hook. Death from peritonitis. (1884, p. 930.)

3. W. E. Forrest, New York. Laparotomy, five or six silk sutures. Death from peritonitis. (1884, p. 1085.)

4. W. R. Gillette, New York. Turning, and easy extraction from abdominal cavity. Recovery. (1884, p. 1087.)

5. H. T. Hanks, New York. Turning, and easy extraction from abdominal cavity. Recovery. (1884, p. 1088.)

6. W. E. Forest, New York. Laparotomy, nine deep, and three superficial silk sutures. Death from peritonitis. (1884, p. 378.)

7. B. F. Baer, Philadelphia. Extraperitoneal; extraction by feet, from abdominal cavity. Death from septicæmia. (1885, p. 585.)

8. W. M. Polk, New York. Extraperitoneal; turning, easy extraction. Death from shock. (1886, p. 494.)

9. Charles Jewett, Brooklyn, N. Y. Laparotomy. Death; cause not stated. (1886, p. 495.)

10. T. Marx, New York. No treatment. Death from septicæmia.

In these ten cases, then, we have eight deaths due to shock, peritonitis, or septicæmia, and only two recoveries, and in both of these cases delivery was effected by turning in the abdominal cavity, and extraction *per vias naturales*, but the ease with which the latter was performed proves there was no disproportion between the pelvis and the fœtal head.

In summing up, Trask states thus the results of different modes of treatment:

	Saved.	Lost	Per cent lost.
Gastrotomy	22	7	24
Turning, perforation, etc.	38	80	68
Abandoned	15	55	78

But my impression is that we will be sorely disappointed if we expect to save 76 out of every 100 cases treated with laparotomy.

If laparotomy is resorted to, I think we ought always to suture the uterus in the way that has proved so beneficial in Cæsarean section, but we cannot expect as good a union on account of the bruised and jagged condition of the edges.

Of late years Porro's operation has in some cases been substituted for simple laparotomy, but of 8 cases so treated only 1 survived[1] This operation

[1] American Journal of the Medical Sciences, 1848 and 1856.

[2] Sur la Rupture de l'Utérus, Thèse de Paris, 1873.

[1] Slawjanski in Annales de Gynécologie, February, 1886, p. 91.

causes so great a shock to the system that even in ordinary cases one-half of the patients succumb. No wonder, therefore, that when performed on a woman who is already worn out by a difficult labor and a rupture of the uterus, it has proved fatal almost every time.

Simple laparotomy causes much less shock when the woman is in a good condition at the time of the performance, and offers the advantage over all vaginal operations that it allows a much more thorough cleansing of the peritoneal cavity and even suturing of the wound, but it is anyhow a capital operation, and added to what the patient has already sustained before it is performed, will often prove too much for her. If extraction through the natural passage can be *easily* effected, be it with forceps, with or without perforation, cephalotribe, cranioclast, or turning, it may yet prove preferable to laparotomy. This can only be decided by a continued investigation of the actual results obtained since the improvements in obstetric practice in general, and especially by scrutinizing the reports of large lying-in institutions in which all cases and their treatment are reported. In cases where great difficulties are in the way of delivery through the normal passage, there can be no doubt about the advisability of performing laparotomy.

SUMMER COMPLAINT.[1]

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The most striking, undisputed etiological factors of this disease are the time of life, and the period of the year when it is most frequent. The great majority of the cases occur during the first twelve months of life, and nearly all during the first two years. After this age the diarrhœal troubles in the child are not much more frequent than in the adult, and are properly classed as cholera morbus. This same period of life is the period of dentition, and it is usual to ascribe to this physiological function more or less influence in the production of the disease. The connection between the two, however, can only be that of coincidence, not that of cause and effect. If the entire freedom from diarrhœa, during the summer months, of a large number of teething children is not sufficient to overthrow this supposed cause, the fact that it is not operative in cold weather, when children cut teeth as well as during the summer, nor during the second dentition, seems to me to be a complete refutation of the dentition theory.

There is, however, something beside dentition going on during the first two years of life. This is, *par excellence*, the period of growth. At no other period of life is the body-weight, relatively speaking, so rapidly increased. It is, therefore, the period of nitrogenous food. Let us call this the albuminous age of the individual. In this we have one of the general causes of the disease.

Another general or predisposing cause is hot weather. This has been so often shown, and its influence so emphasized by statistics that further discussion of it is unnecessary.

The disease is characterized by suddenness of onset, by frequent stools, and gastric irritation. So is arsenic poisoning. So is poisoning by any gastro-intestinal irritant, whether local or systemic. The only difference between one of the mildest cases and one of the *foudroyant* cases of summer complaint is a difference of degree. Have we not here, then, instances of poisoning? If symptoms are worth anything, we certainly have.

Before attempting to answer this question more particularly, let us consider briefly some of the alleged causes of this disease. We have been told, somewhat dogmatically to be sure, that the only proper food for the infant is milk, and preferably mother's milk. Great efforts have been made to produce mixtures having the exact chemical composition of human milk, as if this would settle the difficult question of infant feeding. In all probability, the chemical composition is only of secondary importance, the main reason for the superiority of mother's milk as a food being undoubtedly its purity, its reception by the child immediately from the breast without contamination from exposure. We have no reason to believe that human milk would be any better food for the child than cow's milk, if fed from a bottle, and under the same septic conditions otherwise as cow's milk. While, therefore, admitting, of course, that breast milk is the best possible food for the infant, I should like to enter a doubt to the broad statement that milk, simply because it is milk, is the best and only proper food for the infant.

We are told that the salivary and pancreatic secretions are absent during the first six months of life, and that, therefore, the child under this age cannot digest starches, and between six months and the year digests starches only with difficulty. When we accept this statement in its entirety, we necessarily shut our eyes to what is going on around us every day, the successful digestion of starches fed to infants by mothers and nurses, the undoubted utility of such foods as arrow-root, and we also forget that diastatic power is not limited to the salivary and pancreatic secretions, and that certain bacteria, normally lodged in the intestinal tract, are capable of changing starches to sugar, and sugar to alcohol. Mellin's and Nestle's foods, even when most carefully prepared, still contain some free starch, but this evi-

[1] Read before the Cincinnati Academy of Medicine, February 6, 1888.

dently does not interfere with their utility. Nevertheless, if we can trace the slightest amount of starchy food in the child's diet, it is the custom to charge it with the causation of the diarrhœa. This is not altogether logical.

Clinical experience has shown that the use of sour milk is frequently followed by diarrhœa. Even the slightest acidity is enough to warrant the rejection of the milk as unfit for food. Probably nobody will claim, however, that it is the acidity itself which makes the milk deleterious, but that the acidity is merely the index of the decomposition which has occurred in the milk. The souring of milk is produced by the action of the lactic ferment and consists principally in decomposing part of the milk-sugar into lactic acid. Some of the casein and albumen is also decomposed into simpler substances, and a small amount of alcohol appears, but is subsequently oxidized to lactic acid. Weak butyric and alcoholic fermentations usually accompany the lactic fermentation. The frequent occurrence of butyric fermentation is especially important. When the butyric fermentation is prominent, putrefaction — that is, fermentation with offensive products—is also present. In lacto-butyric fermentation, the butyric fermentation always follows the lactic, the butyric ferment itself seeming, according to Schützenberger, to require for its nourishment albuminoids in a more advanced change than is necessary for the lactic ferment. If the butyric ferment itself is not the immediate cause of putrefactive change in albuminoids, it certainly prepares them for it, and thus facilitates the decomposition. The butyric ferment, the *clostridium butyricum* of bacteriologists, is widely distributed in nature, but has for its principal habitat sauer-kraut, sour gherkins, old cheese, and rancid butter.

Prof. Victor C. Vaughan, of Ann Arbor, who has investigated a large number of cases of milk and ice cream poisoning, has conclusively shown the cause to be a ptomaine, which he has isolated and named tyrotoxicon. Prof. Vaughan has ascertained that the tyrotoxicon is produced in milk either by the butyric ferment or a ferment always found in connection with it. So that for practical purposes we may regard tyrotoxicon as one of the products of the butyric fermentation of milk.

Physiologically tyrotoxicon produces nausea, vomiting, and purging. Chemically, tyrotoxicon, which is identical with diazo-benzol, is very unstable, and is readily decomposed by exposure to the atmosphere. It gives a deep red color with sulphuric and carbolic acids, and reduces ferric salts. The butyrate, the salt found in poisonous milk and cheese, forms needle-shaped crystals, and a potassium compound forms flat hexagonal crystals.

Tyrotoxicon is the only ptomaine which has yet been isolated from milk and milk products, and its physiological effects are identical with the symptoms of summer diarrhœa. Vaughan has reported (THE MEDICAL NEWS, vol. l. p. 673) one case of summer diarrhœa treated by him in which he found tyrotoxicon in a specimen of milk obtained the same day from the same animal as the milk fed to the child immediately before the attack.

We are now prepared to admit tyrotoxicon as a cause of summer diarrhœa, the evidence supporting this view being much stronger than any yet brought forward in favor of other alleged causes. But whether tyrotoxicon is the only ptomaine concerned in its production is not so clear. When we consider the albuminous nature of the food of the infant, and that all ptomaines are nitrogenous bases formed in the decomposition of albuminoids, and that the temperature at which the disease makes its appearance is the one most favorable to the maintenance of all fermentations, and that large numbers of various kinds of bacteria are constantly in the intestines, the possibility of other ptomaines being concerned must be considered. From clinical studies, I am inclined to believe that tyrotoxicon is not the sole cause, though a frequent one, but that there are other ptomaines and other chemical products concerned.

During the past summer, at the College Clinic, at the Home for the Friendless and Foundlings, and in private practice, I treated upward of two hundred cases of summer complaint, and it is upon the consideration of these cases that the present observations are based.

Fever is a puzzling symptom in these cases. It is present in *foudroyant* cases, and in a few of the milder ones. Why is there such irregularity in so important a symptom? Possibly in the febrile cases there is an additional ptomaine capable of paralyzing the inhibitory heat centres.

The greatest interest centres in the stools. Stools are large and watery with but little solid contents, and said to be from the small intestine, or they are small and not watery, and said to be from the large intestine. In addition, stools from the small intestine are usually accompanied by wind and pain immediately before the stool, and are shot out from the bowel with considerable force. Large intestine stools contain mucus, occasionally blood, are passed with straining, and are accompanied by pain during and after the stool. Not infrequently stools combine the characteristics of these two classes. In addition there are stools which cannot be ascribed to either of these categories; they are relatively large, soft, but not watery, and contain a great deal of mucus. The description of minor differences between stools cannot be attempted here. Owing to their incomplete character, stools from the large intestine are usually more frequent than those from the small intestine.

In color, stools vary considerably, but particular

attention should be directed to the green and the brown stools. Hayem has shown that the green stools owe their color to the presence of a chromogenic bacterium. The brown stools also probably belong to a similar category. Upon the odor of the stools they may be divided into two, possibly three, distinct classes. The odor is either putrid, sour, or the normal fecal odor intensified.

Following this, the proper clinical classification of this disease seems to be: 1. Cases in which the intestinal fermentation is putrid. 2. Cases in which the intestinal fermentation is acid.

Cases in which the odor of the stools is not distinctly putrid, but strongly fecal, belong to the first class, because as has been shown by Nencki, skatol, which imparts to normal feces their odor, is the product of fermentation resembling, if indeed it is not, true putrefaction.

It is not difficult to understand how the bacteria causing the fermentations gain access to the intestine. They may be taken down by food already tainted, or by perfectly pure food. On the contrary, when we come to consider the matter, we find that the greatest difficulty is to keep them out. Given a putrid fermentation started in the intestine, the constant ingestion of albuminous food by the infant supplies the means of keeping it up, and the surrounding conditions of heat and moisture make the intestine the best culture ground imaginable. It would be wonderful indeed, if, under these conditions, some ptomaines capable of producing physiological effects were not produced. We must not forget that the ptomaines are all alkaloids, and, like the vegetable alkaloids, some produce poisonous effects, and some do not. The ptomaine or ptomaines most frequently produced under these circumstances act like hydragogue cathartics. Others act on the large intestine more particularly. Possibly some are concerned in the production of fever.

During the early part of last summer, considerable difficulty was experienced in treating the cases of summer complaint at the Home of the Friendless. They recovered slowly and relapses were very frequent. The ventilation of the nursery was bad, and could not be improved. In looking around for a cause, it was found that the soiled diapers were thrown into a bag which hung under one of the windows. This arrangement was immediately changed. The bag was dispensed with, and the soiled diapers immediately after their removal were thrown into a tub containing a solution of mercuric chloride, and placed in the yard below, as far as possible from the nursery.

The other conditions remained unchanged, but the good effects of this move were immediately noticed. The cases improved as rapidly as could be expected, and spreading of the disease diminished. Favorable reports were also received from the laundry maids, who no longer objected to cleaning the diapers, as they were entirely free from offensive odors.

Another instance illustrating the infectious character of the trouble, and also one of its variations, is worth relating. Two infants were received at the same time at the Home of the Friendless, from the Home for Sick Children. Both these children had summer complaint, but the kind of stools that they were having were new at the Home of the Friendless. Their stools were large, soft, but not at all watery, contained a large quantity of mucus, were brown in color, had little nodules like sago grains scattered through them, and in odor the most offensive I have ever met. In a few days this kind of stool was no longer a novelty at the Home of the Friendless, three or four of our older residents having acquired that form of the disease, and considerable trouble was experienced in stamping it out. These stools seemed to indicate a different species of the disease from what we had previously had at the Home.

In the diarrhœas having acid stools it seems that the intestinal fermentation is acetic, lactic, or butyric, and that the substances acted upon are the starches and sugars. From these bodies ptomaines cannot be produced, and we can only account for the diarrhœa by the local irritation of the acid products themselves.

The only fatal case which I saw last summer was a *foudroyant* case at the Home of the Friendless.

The little patient, Gertrude, was two months old, and had been brought into the house when two days old. She was taken suddenly with vomiting, about midnight, and between then and morning had six stools, the first of which were normal, but the others were thin, watery, slimy, yellow in color, sour and offensive in odor. During this time she was given about two ounces of boiled milk with lime water, which she retained. When seen in the morning, she was pallid, wakeful but not crying, lips and tongue constantly moving, eyes and fontanelles sunken, pupils contracted, and temperature 100°. All food was stopped, and she was put on whiskey and salol. By afternoon only one stool had been passed, and this was like the others, except that the odor was putrid. No urine since morning. Gin ordered in place of whiskey and boiled water at short intervals.

By 9 P.M. the stools had lost their offensive odor. At 5 o'clock the next morning the temperature had reached 101.4°; pupils still contracted, and still no urine. By noon she had passed a small quantity of urine, and the stools, though watery, were not offensive. Her general condition, however, was very bad. Small quantities of breast milk were cautiously administered, but without success, the child dying at 6 P.M, forty-two hours after the commencement of the attack. During the last few hours she vomited once, and had several slight convulsions.

At the autopsy, made eighteen hours after death, the following was found: Post-mortem rigidity had

disappeared; it had at first been quite marked. Marked hypostatic congestion. Fingers clenched, abdomen distended. On opening the abdomen the odor was less offensive than usual, and not at all putrid. Both intestines prominent from gaseous distention, and very pale. Slight arborescence of the mesenteric vessels. Peritoneal cavity dry. The small intestine contained a small quantity of a murky yellow liquid, neither sour nor putrid in odor. The mucous membrane was very pale, except one spot about four inches long, where there was marked hyperæmia of the vessels, and redness of a Peyerian patch. Kidneys rather pale on the whole, but with red points on the cortex, and marked striation in pyramids. Liver bloody, and very friable. Bladder empty. Lungs normal, except hypostatic congestion. Heart normal. Pleural and pericardial sacs dry. Brain not examined.

Had this patient been of good stock, instead of being a foundling, she would probably have recovered. The autopsy showed clearly that all putrefaction in the small intestine had ceased, and that it was again fitted to receive albuminous food, but the little one's strength had been so far sapped that she could not rally. The suppression of urine, and the convulsions showed that so-called uræmia was present. How far this was concerned in producing the final result need not be discussed here, but it should be noted that the secretion of urine had recommenced.

Symptoms on the part of the nervous system are very common in summer complaint. The pupils are sometimes dilated but more frequently contracted. Formerly when employing the opium treatment of this affection, I thought that this symptom was due to the small doses of that drug employed. But having frequently observed it since when no opium had been administered, I am constrained to attribute it to another class of alkaloids.

In two cases seen at the clinic, and one in private practice, the following conditions were observed: In each case the child had been sick for several days with the diarrhœal symptoms of summer complaint, when it was suddenly taken ill in a different way, drowsiness, amounting to coma coming on, pupils contracted, respirations slow and shallow, and pulse very weak, and urine diminished, in each case the child seeming to be almost in collapse. In none of these cases had there been any opium given. It was evident here that the poison producing these symptoms had been already absorbed and should be eliminated. In each case an alkaline diuretic, potassium nitrate, was administered together with large quantities of water, and in each case, within four hours, a large amount of urine was passed, and all the grave symptoms completely disappeared.

It is a frequent occurrence to find a child with three or four watery stools daily, and weak, depressed, peevish, uncomfortable, evidently sick, and to find that same child on the following day, after he has had eight or nine watery stools, bright and cheerful, and evidently comfortable. The conclusion is obvious, frequency of stools is not in itself a cause of general depression. The cause of the depression is back of the stools and must be sought in the cause of the stools—that is, in the general cause of the whole condition.

Cases are occasionally met with in which there is some putrefaction in the intestine, nervous symptoms such as have been already described, and a condition of constipation instead of diarrhœa. These cases it seems proper to class under the head of summer complaint. A certain proportion of the acute diarrhœal cases become chronic. The prime cause in promoting this condition, seems to be a diet capable of prolonging the pathological fermentations, and sooner or later structural changes are produced in the intestinal mucous membrane.

In treating these cases, six objects should be kept in view:

1. The bowels should be cleared as far as possible of the fermenting masses giving rise to the trouble.

2. Substances capable of undergoing the same pathological fermentations, and therefore capable of sustaining the process, must be withheld from the patient.

3. Efforts should be made to finish by antisepsis the work left undone by the cathartic.

4. Elimination of the chemical products which have been absorbed and are producing undesirable physiological effects, should be hastened.

5. Special symptoms must occasionally be combated.

6. The stools should be carefully disinfected.

As the preliminary cathartic, the domestic remedy, castor oil, often produces excellent results, but I prefer calomel. It is certain in its action, not unpleasant to take, and possesses antiseptic properties of a high grade.

Food.—In the most severe cases, no food should be given except brandy or whiskey, for one or two days. Ordinarily it is necessary to give some food. In those cases in which the intestinal fermentation is of the putrid type, albuminous food must be withheld. Sometimes one albuminoid will be borne, when another will not. For instance, if the putrefaction has started with milk as a food, and this is usually the case, beef tea or chicken broth occasionally agrees with the patient, but their use is attended with considerable risk, and in severe cases should not be attempted. When it becomes necessary to exclude milk, breast milk should not be made an exception.

When all abuminoids are cut off, a very valuable food may be prepared by filling a bag with flour, and boiling the whole in a pot of water. The dry cooked flour in the centre of the ball is well borne

by the child. This is an old time preparation, and is not yet ready to be discarded. I have used with some success, a food prepared by thoroughly boiling crackers, and when the mixture has cooled down to about 100° F., treating the mixture with "Maltine." This cracker food is not entirely free from nitrogenous constituents, the crackers containing about twelve per cent. of albumen, but it has a practical value which overcomes this theoretical objection. As a test of this food, before the hot weather came on last summer, I put a five months foundling upon it, and kept her on this food exclusively for four weeks. At the end of this time she had gained slightly in weight, notwithstanding the fact that she was syphilitic to the degree that she had suffered destruction of the bones of the nose, and had a gumma. This was proof enough that life could be supported on it through a short period.

When the intestinal fermentation is of the acid type, the food to be allowed is not so easily found. The sugars and starches must be withheld. Milk, ordinarily classed as an albuminous food, contains sugar, and if administered under these circumstances not only feeds the acid fermentation, but soon adds to it an additional putrid fermentation. This change is frequently observed clinically, and seems to be due to the occurrence of the lacto-butyric fermentation. Beef tea, animal broths free from starches, and peptones, are the only safe foods to give under these circumstances.

Antisepsis.—Thus far I have been somewhat disappointed in the results of intestinal antiseptics, and must class them as inferior in importance to the preliminary cathartic, and to the proper selection of diet in these cases. They play an important role, but not the most important role in the management of summer complaint. In this connection I wish to call attention to the very valuable paper of Dr. L. Emmet Holt, on "The Antiseptic Treatment of Summer Diarrhœa" (*N. Y. Med. Journ.*, Jan. 29, 1887). With the statements of Dr. Holt's paper I can heartily agree, except as to a few minor and relatively unimportant matters. As intestinal antiseptics, I confined myself last summer to mercuric chloride and salol. This latter substance, which is said to be decomposed into salicylic and carbolic acids after reaching the small intestine, would seem to be particularly adapted to intestinal antisepsis. On the contrary, I found it rather uncertain in its action, occasionally doing all that could be expected, but much more often not. It is usually absorbed as salol, and patients using it soon exhale from their whole bodies its peculiar odor.

Mercuric chloride is not satisfactory, except when given in injection in rectal troubles.

With the other antiseptics I have, as yet, no experience in this disease.

I wish to lay particular stress upon the use of diuretics. Their value in severe affections is sufficiently shown by the cases already mentioned, but in milder cases they play an important role in controlling or alleviating certain nervous symptoms. The alkalies and water form the best diuretics for this purpose.

Pain, when severe, must be met with opium. Opium, with bismuth, is again indicated when the number of watery stools becomes so great as to endanger life, but this condition, I think, arises only rarely. Free purgation is essential to the treatment of this disease on the plan herein indicated, and the opium treatment cannot be consistently employed with it. With the opium treatment of the disease it is very easy to control quickly all the symptoms and make the case at once present a much improved appearance, but the good result is more apparent than real, and the old train of symptoms soon sets in again.

In conclusion, that to which I wish particularly to direct attention, is:

1. The recognition of the two forms of pathological intestinal fermentation met with in summer complaint, and the classification of the cases in accordance therewith.

2. The selection of diet based upon this classification.

3. The use of diuretics in cases of summer complaint presenting undesirable symptoms on the part of the nervous system.

4. Disinfection of the stools.

FOREIGN BODY IN THE BLADDER: REMOVAL BY MEDIO-LATERAL CYSTOTOMY.

By ALBERT L. GIHON, M.D.,
MEDICAL DIRECTOR, UNITED STATES NAVY.

The paper read by Dr. DeForrest Willard before the Philadelphia County Medical Society (The Medical News, November, 1887) on the removal of foreign bodies from the urethra and bladder, and the cystotomy, performed for this purpose, reported by Dr. W. W. Keen to the same body (The Medical News, January 14, 1888), may cause the recital of the following case to have a pertinent interest:

D. D., oiler, native of Ireland, aged thirty-one years and five months, admitted into U. S. Naval Hospital, Mare Island, California, from U. S. Ship "Marion," November 1, 1887, as with "foreign body in bladder." The hospital ticket contained the following history of the case:

"On September 18th, presented himself saying that four days before (September 14th) he had passed a pine stick (thickness of a Faber lead-pencil and 4¼ inches in length) into his urethra. He attempted its removal with a gimlet and broke 1¼ inches from further end of stick, which entered his bladder. After suffering agony for four days and frequent severe chills, he revealed his condition;

after which the stick (three inches of it) was removed by perineal section. In fifteen days, the perineal wound healed, but about half of the scrotum sloughed away with great fetor. Nature repaired this loss and he is apparently well, but the fragment of stick yet in his bladder is causing pain, hemorrhage, and stoppage of urine. He is sent to hospital to have this foreign body removed."

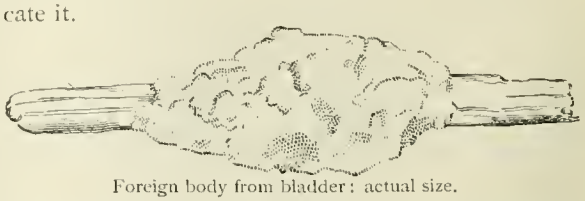
On admission to hospital he entered the service of Passed-Assistant Surgeon Norfleet, from whose notes the following clinical history is collated:

Patient states that there is a stick an inch and a quarter long in his bladder, which sometimes arrests the flow of urine during micturition, and toward the latter part of the act blood is passed; suffers pain only at neck of bladder; wound resulting from former operation almost healed, leaving only a small citatrix behind the scrotum, about an inch anterior to the bulb; no evidence of loss of soft parts by sloughing; foreign body readily discovered in the bladder by bougie à boule.

November 29. Patient was put under ether by Passed-Assistant Surgeon Lewis, and Medical Director Gihon, assisted by Passed-Assistant Surgeon Norfleet, Assistant Surgeon Harris, and Drs. Mathis and Fallier, of the French Navy, performed median cystotomy, reaching the bladder without difficulty, but it was found impossible to extract the foreign body and the median was changed to lateral (left side). The foreign body was found lying crosswise superiorly and could not be grasped at once, but after much manipulation and pressure above the pubes it was finally seized with the forceps and extracted. It proved to be a piece of penholder, *three and a quarter inches long*, incrusted with phosphates, forming an irregularly spindle-shaped mass, with three-fourths of an inch of the stick projecting at each end, one of these ends being broken and jagged. The incrustation was one and three-quarters of an inch long and three-quarters of an inch in diameter at its thickest part, and very rough. The operation lasted two hours and a half, and was attended with a great deal of hemorrhage. By the following morning most of the urine passed through the urethra, and by December 12th the wound was almost healed, no urine issuing through it, and a good stream passing through the urethra not oftener than in health.

December 16. Discharged from hospital, not one unfavorable symptom having occurred, and no other antiseptic precautions having been observed than the immersion of the instruments and rinsing of operator's hands in a 1 : 2000 solution of mercuric chloride.

The figure represents the size and appearance of the foreign body, which were unexpected in view of the positive statement of the medical officer signing the hospital ticket, at the transfer of the patient, that only one and one-quarter inches of the stick had passed into the bladder. Its spindle-shape caused the body to lie transversely just beyond the reach of the forefinger after the dilatation of the wound to its extremest possible extent, where it rotated upon its axis, thus eluding the attempts to seize and extricate it.



Foreign body from bladder: actual size.

Notwithstanding the success of the operation and the healing of the wound without drawback, after the necessarily severe and protracted manipulations, I still regret that I had not adhered to my original intention of opening the bladder above the pubes, which the size and shape of the incrusted stick and the very great difficulty attending its extraction prove to have been the proper procedure.

The case is here reported as evidence of the preference which should be given the high operation under similar circumstances.

HOMATROPINE HYDROBROMATE.

A Study of its Clinical Value in Ophthalmology.

By JOHN S. STEWART, M.D.,
of Philadelphia.

In an endeavor to bring this subject unbiassedly before the profession, the author has carefully gone over all the current literature, and extracted what seems correct. These researches he has embodied in the present paper, and from them drawn certain conclusions.

ACTION ON THE CILIARY MUSCLE.

First. Single instillations of either the one-twentieth or the one-fortieth of a grain of homatropine hydrobromate are insufficient to paralyze the accommodation (Oliver).

Second. Repeated instillations will paralyze the accommodation. The minimum amount thus found to be capable of producing *complete* paralysis of the ciliary muscle in an emmetropic eye is the one-fifteenth of a grain, in two instillations of the one-twentieth and the one-sixtieth of a grain each, the latter quantity being instilled at the time of the former's greatest intensity of action (thirty-two minutes after the first instillation).

Third. The maximum amount of the drug recommended and used in repeated instillation for the purposes of examining refraction, so far as has been reported, is a solution of gr. xxiv to the f℥j, two to three instillations being required in most cases to paralyze completely the accommodation.

Fourth. Complete paralysis of the ciliary muscle following single or repeated instillations is found to be established in from twenty to ninety minutes, the time depending to a great extent on the amount of the drug used.

Fifth. Careful study of some of the reported cases

where a sufficient amount of the drug had been used to paralyze the ciliary muscle, distinctly shows that the fine distinction of astigmatic angles and the estimation of degrees of astigmatism were not positive, and, in some of the reported cases where other mydriatics were afterward employed, varying amounts of ametropia could be found in excess of what had been measured when the homatropine was used.

Sixth. The duration of the local paralysis is variously estimated to be from thirty minutes or longer to several hours.

Seventh. In cases where the loss of ciliary power was complete, the muscle regained its full action in from ten to seventy-two hours—the time being directly dependent, in the majority of cases, on the amount of the drug used.

ACTION ON THE IRIS.

First. Single instillations of the one-twentieth of a grain of hydrobromate of homatropine, in the majority of cases, are capable of producing complete mydriasis; whilst it is impossible to obtain maximum dilatation by means of single instillations of one-fortieth[1] of a grain (Oliver).

Second. Repeated instillations cause maximum dilatation of the pupil in the majority of cases. Keyser has observed that the weaker instillations of the drug do not dilate *ad maximum*, whilst the stronger ones, by the irritation which they produce, occasionally cause antagonistic action in the circular fibres of the iris, the result being some contraction of the pupil.

Third. The return to normal of the pupillary diameter is found to take place in thirty and fifty hours respectively after single instillations of the one-fortieth and one-twentieth of a grain are made. The time given by Völckers after the instillation of a one per cent. solution is from twelve to twenty-four hours.

ACTION ON THE CONJUNCTIVA.

First. Single instillations of either the one-fortieth, or the one-twentieth of a grain of an absolutely neutral salt are not productive of conjunctival irritation (Oliver).

Second. Repeated instillations cause irritation and hyperæmia of the conjunctiva (Schell, Keyser, Oliver, Jackson and others).

Third. In a few instances, as noticed by Keyser,[2] and others, acute conjunctivitis has followed repeated instillations of the drug, especially of the stronger solutions.

ACTION ON THE INTERIOR OF THE EYE.

A certain amount of choroido-retinal irritation, accompanying the use of homatropine has been observed by Risley and others.

ACTION ON THE GENERAL SYSTEM.

First. Tweedy and Ringer have shown the special action of homatropine to be on the nerve centres, especially the spinal cord. The effect on the heart, as found by them and observed by Hare, was slowing, accompanied by irregularities of force and rhythm.

Second. Toxic symptoms never follow single instillations of minimum amounts of the drug.

Third. Repeated instillations of the quantities noted by the various authors are not frequently accompanied or followed by constitutional disturbance, the few such cases reported being limited to "hallucinations," "incoherency of speech," "drowsiness," "intoxication."

CONCLUSIONS.

First. Single instillations of less than the one-fifteenth of a grain of hydrobromate of homatropine are of no value for the correct estimation of ametropia.

Second. On account of the quick return of the ciliary power and normal size of the pupil after single instillations of the one-fortieth of a grain or less, of hydrobromate of homatropine, this drug is extremely useful in cases where an accurate ophthalmoscopic examination of the media and fundus of the eye is desired.

Third. As a single instillation of an absolutely neutral salt does not act as an irritant, the drug may be thus employed for purposes of precision, even in cases where local irritation exists.

Fourth. On account of the constant local irritant action of repeated instillations of hydrobromate of homatropine, this drug may be considered harmful in certain cases of inflammatory disease, or traumatic lesion of the ocular coverings and tunics.

Fifth. The fact of the constant irritant action of repeated instillations of homatropine hydrobromate on the deeper tunics of the eye, the choroid, and probably to a certain extent the retina, gives answer in great measure why ametropia cannot be properly estimated; hence the drug should be avoided in the correction of refractive error.

I here desire to express my thanks to Dr. Charles A. Oliver for many valuable suggestions and assistance given in the preparation of the present paper.

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[1] Hotz claims to have obtained complete dilatation by the instillation of a single drop of a one-half per cent. solution.

[2] In a recent article this author states that the use of a perfectly neutral salt, "thoroughly washed from all free acid," does not cause the irritation he first observed.

THE TOPICAL APPLICATION OF OIL OF TURPENTINE TO RECENT WOUNDS,

With Observations Relating to the Germ Theory of Disease.

By ROBERT B. S. HARGIS, M.D.,
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From the very interesting paper in The Medical News of November 19, 1887, page 601, in reference

to Holmfeld's experiments with the oil of turpentine, we learn that for some hours after the application of oil of turpentine to various kinds of germs, and particularly to fresh colonies of *micrococcus prodigiosus* and *staphylococcus*, its effects on their life and growth are *nil*. Hence it is evident that turpentine, unless applied in large amounts for a considerable time, produces no sufficient effect to encourage our use of the drug for the purposes of antisepsis.

The writer has for many years applied the oil of turpentine in almost every case of external injury involving a solution of continuity of hard as well as of soft parts, with the effect of preventing suppuration and sepsis, and hastening the process of repair. For example, a recently maimed hand or foot is presented, in which certain tissues, integuments, muscles, nerves, bones, etc., are involved to an extent a little short of necessitating amputation. After the removal of all foreign bodies, every fragment of bone and necrosed tissues, and other parts likely to die, effusions of blood are stopped, and every visible clot is cleared away, and after free lavation with hot water —about 101° F. — the parts made as dry as possible by a clean, soft sponge, are properly adjusted and covered with pledgets of lint or absorbent cotton saturated with the oil of turpentine; adhesive plaster may now be useful or necessary, and a careful application of a muslin roller bandage completes the first dressing. A compound of two parts of oil of turpentine and one of linseed oil, thoroughly mixed, is now applied over the site of the wound to repletion, and reapplied at certain intervals, so as to keep it constantly saturated. By this manner of dressing, the wound will remain free from indications of putrefaction for an indefinite time. I have known this dressing, in the case of an amputated finger, to be retained nine days, and when removed emitted no other odor but that of the turpentine and linseed oil, and the cut surfaces had united by first intention.[1]

In all my amputations I now use animal ligatures, and cut them off near the knot, the flaps or incised surfaces are brought together with care, and retained by adhesive strips, without *the aid of stitches*, and supplemented by muslin rollers carefully and neatly applied, with excellent results. The manner of using adhesive plaster is of no little moment, for either of the extremities; for an arm or a leg, the strips should be cut nicely even, one-half an inch in width, and long enough to extend four or five inches on both sides of the base of the flaps; a strip about five inches wide should encircle the stump so as to embrace the ends of the narrow strips neatly. Of course, the length and breadth of the strips are varied according to circumstances. Treated by sealing in this way hermetically, as it were, other wounds besides those of amputation are not only "unmistakably safe," but the reparative process is absolutely favored. The following cases very well illustrate the results of the treatment of wounds and amputations above indicated:

Case I. — William S., aged thirty-five years. Amputation of the arm necessitated by a gunshot wound of the hand and forearm, which was attacked by gangrene. The amputation wound united by first intention, under the turpentine dressings; but at the inner part of the *cicatricial* line it healed by granulation, while the other part healed by first intention. This difference in result is explained by the fact that although the wound had healed along the entire line, showing a nice narrow cicatrix, a few weeks afterward a small abscess formed near the inner point of the line of union, and terminated in a little sinus, through which a spicula of bone soon made its way out, leaving a healthy but rather ugly scar.

Case II.—John H., aged thirty-two years. Partial amputation of the hand. In the act of coupling railway cars, all the fingers from their ends up to the metacarpo-phalangeal articulations were literally *mashed*, and two lacerated wounds appeared, but little jagged, extending from near the wrist longitudinally and parallel to one another, through the palmar integument, down to the fascia, and out to the mashed fingers. Of course amputation was inevitable, and I operated through the distal third of the phalanges of the metacarpal bones, and obtained excellent flaps. Five or six vessels were ligated with animal ligatures cut off near the knots. The flaps were carefully brought together and held in coaptation by narrow adhesive strips and a roller bandage. The oil of turpentine had its place in a strip of lint, over the amputation wound before the bandage was applied, and the compound of turpentine and linseed oil came in for its share of usefulness. The dressings were allowed to remain intact ten days, and when removed the wound was found cicatrizing nicely, and in less than another ten days was well, in spite of irregular habits and whiskey. The thumb is now useful, and a *sine qua non* in his daily work.

Case III.—William R., aged fifteen years. Lacerated wound of the index finger of the right hand, by gunshot. The parts of the member hung together by a few muscular fibres, tendons, etc., and all of the middle third of the bone had been carried away except a few splinters. I had determined to amputate, but the boy plead so earnestly that an effort should be made to save it, and, on reflection, considering that a few bundles of muscular fibres and tendons were intact, and that a branch from the *arcus sublimus* was in continuity, I yielded, and dressed the wound carefully in my usual way. Repair was completed in about three weeks, and the patient had a useful and by no means an ugly finger.

Now, what are the relations of this practice to the germ theory? Why do not wounds under the treat-

[1] The oil of turpentine prevents the free exudation of serum, which generally flows for some time after amputation, and always deprives it of putrefactive and irritating qualities.

ment indicated suppurate? Why do they not have the odor of putrefaction? Why do they heal kindly and speedily?

I shall not essay to answer these questions, because the attempt would involve a discussion beyond the limits of this paper. But it is certain that as a preventive of septic influences on wounds, even if it fail to destroy various kinds of germs besides the *micrococcus prodigiosus* and *staphylococcus*, nothing better has yet been discovered that can be used in every-day practice, or is more handy or more efficacious than the oil of turpentine, not excepting the 1 : 1000 solution of the bichloride of mercury.

MEDICAL PROGRESS.

The Treatment of Follicular Tonsillitis.—Boisliniere reports seventy-five cases of follicular tonsillitis treated with benzoate of sodium, as follows:

In treating these cases no local application whatsoever has been used—no gargle prescribed. We have simply used the following formula:

Benzoate of sodium . . .	ʒ j–ʒ iv
Glycerine,	
Elix. calisaya bark . . .	āā ʒj. M.

Sig.—One teaspoonful every hour or every two hours.

In the analysis of seventy-five cases, being the last seventy-five treated, we find that:

1. By the use of the benzoate of sodium the disease is cured in from twelve to thirty-six hours, a great gain in time, as the average duration of the disease has been heretofore from two to five days. (Mackenzie.)

Of the seventy-five cases,

41 reported well in 12 hours,
31 " " 24 "
3 " " 36 "

Average, 20 hours.

In private practice, when the cases could be watched more carefully, we have frequently seen the white cheesy points disappear in from eight to ten hours.

2. That the benzoate of sodium undoubtedly controls the febrile elements in the disease.

3. That it may be given with impunity, even to children; we have never been able to discover any bad or even disagreeable effects from its action.

4. That it is a valuable addition to the remedies used in throat affections, especially in an acute inflammatory condition of the tonsils, when applications only aggravate, and gargles increase the trouble.—*St. Louis Courier of Medicine*, February, 1888.

Tobacco Amblyopia.—From the study of forty-nine cases of this affection, Browne reaches the following conclusions:

1. The optic nerve resembles a sensory tract of the spinal cord, consists of two tracts, of which the central has a special affinity for tobacco, while other drugs—*e.g.*, quinine—will leave it unaffected.

2. Tobacco is the essential agent in causing an axial neuritis, which does not in ordinary cases tend to spread to the nerve-fibres coming from the peripheral retina.

3. As a rule patients apply in the early stage of neuritis, and complete recovery may be expected without any treatment except entire cessation of smoking.

4. When recovery is established, moderate smoking is not injurious.

5. Although it would be absurd to suppose tobacco is the only agent capable of causing axial neuritis, no other has yet been substantiated in a series of cases arising in strictly non-smokers.

6. Besides tobacco a special condition is required to precipitate an attack; alcohol, diabetes, excessive venery, starvation, mental shock or distress, are the most common auxiliaries.

7. In some persons a special tendency to degeneration (sclerosis or atrophy) exists hereditarily; to these tobacco is especially injurious.—*Liverpool Medico-Chirurgical Journal*, January, 1888.

A Draught to be administered in Delirium Tremens.—Savignac prescribes the following:

Gum arabic water,	
Claret	āā ʒ 15
Syrup of tolu	ʒ 7½
Aqueous extract of quinquina . .	ʒ 1
Tincture of musk	♏ 75.

A teaspoonful hourly.—*Revue de Thérapeutique*, Feb. 1, 1888.

An Unpleasant Effect from Saccharin.—Hedley reports, in the *British Medical Journal* of February 11, 1888, the following case:

In a case of glycosuria I had prohibited the use of sugar, and substituted saccharin, with apparently excellent results; but after about twelve or fifteen doses had been used, my patient began to feel so much nausea that he was obliged to leave off taking it. His mouth got to have an "abominably sweet taste always in it," and, without the addition of any sweetening material, everything he touched tasted of saccharin; indeed so pronounced was this that his pipe, usually such a solace, had to be given up in disgust, on account of the smoke having such a sweet flavor.

This intensity of sweetness occurred on the fifth day after beginning the saccharin; and probably an explanation will be found in the fact that it passes unchanged through the system, and will, I am afraid, produce a sweet saliva, unless it is used with occasional intermissions.

The Toxicity of Boric Acid.—Gaucher has made recent investigations on the extent to which boric acid may be safely administered. He estimates that to poison an adult a dose of 2½ ounces must be given daily for 10 days. He has used it externally, as usually done in skin diseases, with good results, and has prescribed it internally in phthisis, in doses of 8 to 15 grains daily, with advantage.

As it is eliminated by the kidneys, he suggests its internal use in cystitis, thus avoiding the irritation produced by catheterization.—*Gazette Médicale de Paris*, February 4, 1888.

Benzol in the Treatment of Whooping-cough.—MACALISTER, in the *Liverpool Medico-Chirurgical Journal* for January, 1888, reports his experience in the use of benzol in whooping-cough, as follows:

The greater number of children who came under notice had had the disease for two or three weeks, some being in the stage of full development, and a few in the stage of decline. In many of these the benzol appeared to be effective, lessening the frequency of the paroxysms, rendering them less distressing, and also perhaps hastening the time of recovery, the improvement in some cases being so marked and rapid as to leave but little doubt in my mind that it was accelerated by the remedy employed. In these cases in which the benzol was given during the first fourteen days of the "whooping" stage, one cannot with certainty say that any benefit immediately followed its use; the paroxysms were not apparently diminished in number, although perhaps they were shorter and less distressing, but in the third week and in the period of decline the drug appears to be useful.

Benzol is insoluble in water and will not mix with it even with the addition of mucilage, but if a little rectified spirit (in which it is freely soluble) be added to a thin mucilage, together with some simple syrup and a few minims of tr. chloroformi co., an excellent mixture is produced, which is readily taken by children. The dose of benzol is from ♏ij to ♏vj or more, and the formula I have used is as follows:

R.—Benzol (pur.)	♏ij.
Sp. vini rect.,	
Tr. chloroformi co. . . .	āā ♏ijss.
Syrup. simp.	♏xx.
Mucilag.	ad. ʒj.

Dose, ʒj–ʒiij, according to age.

Chloride of Methyl, Locally, as an Anæsthetic.—BAILLY has found that tampons saturated with chloride of methyl are a convenient and efficient means of producing local anæsthesia by refrigeration. He has devised a simple apparatus by which chloride of methyl may be kept in a liquid condition for several hours, transported conveniently, and applied by tampons or a brush. With suitable precaution, this method of anæsthesia may be applied to mucous membranes.—*Gazette Médicale de Paris*, February 4, 1888.

Hydrobromate of Hyoscine in Mania.—THOMPSON, in the *Lancet* of February 4, 1888, reports his use of the drug as follows:

The chemists prepared at my request a solution containing a grain in 400 minims. I fixed upon this strength, so that in the event of a moderate quantity being given in mistake for the same of a solution of morphia no particular harm would be done. The dose of this solution is from two minims (1–200th of a grain) to four minims (1–100th of a grain). As much as six minims have been given, but the patient is made so "drunk" that the smaller doses are preferred. My colleagues and I have used the new drug in many cases, but we find that while on all occasions it acts as a certain hypnotic, it is of most use in cases of chronic, and recurrently chronic, mania. The effect on the sexes is about the same. There is marked sluggishness of all motor functions, with depression of reflex activity, and dizziness, dimness of vision, an ataxic gait, and dryness of the mouth and fauces. All these symptoms are but faintly seen when only a proper medicinal dose has been given. The drug has been used here, as I have said, in very many cases, and I can say that on no occasion have we failed to produce the desired effect. The patient is quieted and falls asleep, but the sleep is not very deep of its kind, and at any stage there is no difficulty in rousing the patient to the fullest extent of wakefulness, though he soon falls asleep again. In acute mania, where much restlessness and tendency to knocking about are the chief symptoms, it acts most beneficially. The patient comes to his senses and rests quietly, and so time is gained and exhaustion avoided.

The Treatment of Bronchitis.—FERRAND has prescribed creasote as follows:

R.—Creasote	gtt. 3.
Essent. limon.	gtt. 2.
Aquæ	gtt. 120.
Syrup. aurant. flor.	gtt. 30.

A teaspoonful of such a mixture may be taken every two or three hours.—*Journal de Méd.*, January 22, 1888.

The Effects of Strophanthus.—ROSENBUSCH, of Lemberg, concludes from his clinical studies on the use of strophanthus, that it possesses a marked influence upon the heart, increasing the force of the systole, prolonging it, raising arterial tension, and slowing heart action. It strengthens the heart muscle and regulates its action. It possesses a distinct, but very slight, diuretic power. It disturbs digestion less than the heart tonics in general use. It may be used for several weeks without symptoms of cumulation. The best form to be prescribed is simple tincture, in doses of from 10 to 25 drops three times daily.

It may be given with advantage when digitalis does not agree with the patient, and in cases of severe disturbances of compensation it may be used to maintain the effect of digitalis. The alcoholic tincture is superior to the ethereal tincture, because it contains the glucosides from the plant, while the ethereal tincture is more likely to disturb digestion.

It should not be used in stenosis of the aortic valves, because it prolongs the cardiac systole.—*Berliner klinische Wochenschrift*, February 13, 1888.

Sour Milk in Summer Diarrhœa.—The *Medical Press* of February 8, 1888, writes that the house-surgeon of the Prison Zweibrücken, DR. OSTHOFF, has in two annual reports spoken very favorably of the employment of sour, curdled milk in summer diarrhœa, in adults as well as in children. Such teaching may seem startling to the English mind, with its prejudice against using milk having about it any suspicion of sourness, and especially as an article of food for infants. It should be borne in mind, however, that England is perhaps the only country in the world in which such a foolish prejudice exists, and in which sour milk is not considered at least as wholesome as milk that is sweet. But this by the way. Dr. Osthoff endeavors to explain the beneficial action of sour milk in the following way. He believes that the bacilli of sour milk destroy and overcome, by their rapidity of growth, the other microörganisms that are the cause of the diarrhœa, and that they thus bring the process to a

standstill. In addition to its value as a dietetic agent in summer diarrhœa, it proved exceedingly useful "in all chronic abdominal affections associated with dyspepsia, in chronic intestinal and hepatic diseases with diarrhœa, or constipation, in jaundice, and as an article of diet in typhoid, pneumonia, and erysipelas. In tuberculosis of the intestines, however, it increased the diarrhœa. It forms a valuable means of support to Oertel's treatment in cardiac cases, and cases of emphysema, in small quantities as a substitute for coffee, wine, beer, and water, as a thirst-quenching drink, as well as a food containing both muscle- and fat-forming material in one and the same form. At the instance of the Bavarian ministry, Prof. von Voit worked out an official report on this sour milk therapeusis, and from this some interesting details may be extracted. Sour milk very much resembles fresh milk as a food (four per cent. albumen, three per cent. fat, four per cent. sugar). The use of it is to be recommended as an addition to the needful amount of hydrocarbons. Moreover, especially in summer, it forms a refreshing drink, and may be ordered with advantage in dyspepsia. The action of sour milk is very varied; sometimes it causes constipation, and sometimes diarrhœa. For this reason he recommends that in infantile diarrhœa it shall be used with caution. In general he recognizes the value of sour milk as an article of diet. A writer in the *Deutsche Medizinal Zeitung*, commenting on the above, draws attention to the similarity of sour milk and kefir, and let us add the imitation koumiss, now so familiar. Both are used in phthisis. Koumiss at one stage (when fresh) is known to relax the bowels, whilst at another it constipates. It is the same with kefir, and doubtless it will be the same with sour milk, as it gets older it becomes more constipating. We think Dr. Osthoff has done well in drawing attention to a neglected and very useful article of food.

Amylen Hydrate.—In the clinic of Schreiber, Gürtler, at Königsberg, reports his results in sixty-one cases of various conditions, in which he used amylen hydrate as a hypnotic.

The cases included alcoholism, encephalomalacia, morphiomania, epilepsy, and tuberculosis. His prescriptions were as follows:

Amylen hydrat.	grs. 105.
Aquæ dest.	ʒ 10.
Syrup of raspberries . . .	ʒ 7½.—M.

Half of this to be taken on retiring.

Or,

Amylen hydrat.	grs. 105.
Aq. menth. pip.	ʒ 10.
Syrup of raspberries . . .	ʒ 7½.
Ol. menth. pip.	gtt. 1.—M.

Half to be taken on retiring.

The dose of amylen hydrate ranged from 50 to 90 grains. Gürtler obtained less uniform results in children than in adults, with this remedy, in proportionate doses. He considers it less apt to induce cardiac failure than chloral hydrate.—*Berliner klinische Wochenschrift*, Feb. 6, 1888.

The Immediate Closure of Tracheal Wounds.—Sir William MacCormac writes to the *Lancet* of February 4, 1888, his opinion on this subject as follows:

In support of your editorial remark on the advantages of immediate closure by suture of tracheal wounds, I would refer to a case published in the *Lancet* of January 2, 1886, where the blade of a broken tooth-forceps was extracted from the right bronchus. The incision in the trachea was an inch and a half long, and this I carefully closed by suture. The external wound was also closed after drainage tubes had been introduced. I am convinced this proceeding materially contributed to the successful issue of the operation, by shutting out the cold air from the lungs and preventing wound secretions entering the trachea. It will not be always desirable to close the tracheal wound, but in those instances where an operation is performed for the removal of foreign bodies from air passages, in some cases of suicidal wound, and generally where the conditions for local repair are favorable, there are obvious advantages to be gained by the immediate suture of the tracheal wound.

Children's Food in Typhoid Fever.—Jacobi, in the *Archives of Pediatrics* for February, 1888, recommends the following mode of treatment: Typhoid fever is of long duration, its temperature is sometimes quite high in children, as it is in adults. The small intestine is affected principally. Thus, not only is, after the first few days, a considerable amount of food required, but it must be so chosen as to be digestible in the stomach; its proper selection is the more important the more the latter organ is impaired by high temperatures. Beside plenty of water, or acidulated water (hydrochloric, no organic, acid), albuminoids are indicated. Milk and cereals (in decoctions, which must be strained) are the proper foods. The administration of stimulants, both as to quantity and to time, depends on the character of the individual case, and the power of resistance on the part of the patient, beside the condition of the heart. When the latter becomes feeble at an early period, beside heart-stimulants (digitalis, spartein, caffein, camphor), alcoholic stimulants are required. Diarrhœa demands (beside opium, naphthalin) albumen, rice-water, arrow-root, mutton-broth. Hemorrhage forbids food in any shape for a time, the duration of which depends on the general condition of the patient. At no time during the disease, and during the first ten days of fully established convalescence, the food must ever be solid. No vegetables must be allowed until three weeks have elapsed since the beginning of apyrexia. When the milk and cereal food become distasteful, a change in their preparation will and must suffice. The large majority of relapses are due to a dereliction in the strict rules of feeding.

An Emulsion of Terebene.—England, in the *American Journal of Pharmacy* for February, 1888, reports the following formula:

℞.—Terebene,

Ol. gossyp. sem. . . .	āā ♏clx.
Pulv. acaciæ	ʒvj.
Pulv. sacchari	ʒij.
Aquæ q. s. fiat. . . .	f℥iv.—M.

Dose, 1 to 2 teaspoonfuls (=10 to 20 drops).

The product is a milk-white, perfectly suspended liquid, having the odor and bitter, turpentine-like taste of terebene, and is miscible with water, without separation.

Alum in Typhoid Fever.—DR. PAOLETTI has treated sixty cases of typhoid fever, with excellent results, with crude alum alone. He remarks that this drug has formerly been used only as a styptic and an astringent, but now that its antiseptic properties have been recognized it is clearly indicated as a remedy for abnormal fermentations in the intestinal canal.—*British Medical Journal*, February 4, 1888.

A Case of Macroglossia, with Partial Resection.—TAKAKI, of Tokio, reports, in the *Sei-I-Kwai Medical Journal* for January, 1888, the following case of macroglossia, on which he operated in the Tokio Charity Hospital:

The patient, a boy, aged two years and two months, was admitted on the 18th of October, 1887, with the following history: About the 10th of August, 1887, he was taken ill with sudden rise of temperature, sleeplessness, violent screams, etc., without any known cause, so that his mother thought he had caught "cold," but soon his tongue became much enlarged, protruded from his mouth, accompanied with some pain, and, at the same time, saliva increased in quantity, moistening the parts about the mouth and the clothing and interfering with mastication.

State on admission: The nutrition fair, slightly pale. Tongue enlarged, protruding from the mouth reaching down to the chin, looking as if constricted by the lips. Generally red, epithelium off at the apex and under surface, edges blackened with dirty-looking matter, upper surface presenting much enlarged papillæ here and there with excoriations; under surface presents transverse ulceration owing to the irritation of the teeth in the lower jaw. It measures four and a half inches from one corner to the other passing over the apex along the edges. Circumference at the mouth about four inches and eight lines. Manipulation gives him no pain, the tongue lying within the mouth only slightly congested, the secretion of saliva not so great as stated at its commencement. The child was utterly unable to masticate food so that he had to be fed with liquids and comminuted articles of food; the incisors of the lower jaw project outward, but the jaw is not deformed. All the other parts of the body apparently normal; urine normal. Operation was performed on October 21st, under the influence of chloroform, by Dr. Takaki. The protruding part of the organ was removed with incisions of Λ-shape, the legs directed forward and outward to the edges, while the apex was toward the base of the tongue. Bleeding checked with torsion and wounds sewn up with six sutures. In order to prevent the retraction of the tongue within the mouth, two tough silk threads were passed on each side of the organ, their ends being held by the assistants. After the operation, the two threads were kept fixed on each cheek with adhesive plaster, the object was to pull the organ out so as to make the removal of sutures easier. A mixture of tincture of opium three minims, simple syrup half a drachm, and two drachms of water, was ordered to be given three times a day.

On the 28th of October the tongue became clean. The last suture was removed, it was purposely kept so long from fear of the wound not being able to heal as in ordinary cases, because the tissues were hardened. The wound entirely healed up, the tongue now presenting a round apex lying within the cavity of the mouth. Discharged.

Microscopic examination of the removed part corresponded with the description given by Virchow and others.

Antiseptic Tooth-washes.—At a recent meeting of the Odontological Society of Pennsylvania LEFFMANN reported his experience as follows: Several formulæ for antiseptic tooth-washes have been offered as fulfilling the indications here referred to, and, with a view of testing the practical value of these, I made up two forms, and present them for consideration by the members. In my opinion, they are both rather too strong, and can only be used very much diluted with water. This will, of course, interfere greatly with their antiseptic effect. Besides this, they are necessarily retained in the mouth for a very short period, and even if we suppose that they penetrate into all parts of supportive structures, they do not remain long enough to do any good. I give herewith the two formulæ, both of which I have used, and find the first the most agreeable:

Thymol	4 grains.
Benzoic acid	45 "
Eucalyptol	220 "
Alcohol	3 fluidounces.
Oil of wintergreen	25 drops.

Use a teaspoonful in about three tablespoonfuls of water as a wash.

Thymol	20 grains.
Alcohol	1 fluidounce.
Glycerin	1 "
Water	Enough to make 1 pint.

Use as above.—*Dental Cosmos*, February, 1888.

A Case of Idiosyncrasy Regarding Antipyrin.—STURGE reports in the *British Medical Journal* of February 4, 1888, the following interesting case of idiosyncrasy with regard to antipyrin. A member of my family liable to migraine was attacked in the ordinary way a few days ago, and I administered for the first time a dose of five grains of antipyrin in powder, with the following curious result: Five minutes after taking it, the "deadly sickness" which was previously present seemed to give way, and an "expanding sensation" was felt, rising from the stomach upward. Almost immediately she sneezed violently for about twenty times running without pause. The face and eyes became deeply suffused; tears began to flow; quantities of mucus flowed from the nose; the breathing became hard and labored, accompanied by a feeling of suffocation; there was complete inability to lie down. A violent cough shortly came on, and large quantities of mucus were expectorated; at the same time there was very profuse sweating.

After these phenomena had lasted for about half an hour, intense itching was felt on the insides of both thighs, and on examination there was found a thick outcrop of urticaria, which soon extended on to the abdomen. There was also a strong coppery taste in the mouth—not continuing, but coming on in violent bouts—and an equally strong smell of the same metallic nature, also intermittent. There was loud singing in the ears, which felt intensely congested. The pulse was quick and very full.

After the symptoms had lasted about three-quarters of an hour from the commencement, they gradually disap-

peared, some tightness of the chest and running at the nose remaining for four or five hours longer. The sickness accompanying the migraine disappeared completely as soon as the drug had begun to work; the headache also disappeared for a time, but came back slightly about four hours afterward.

Saccharine and Chartreuse.—Petit proposes an elixir of saccharine and *la grande chartreuse*, as follows:

Chartreuse	ℿ 15.
Spts. of wine	℥ 2.

Dissolve in this mixture

Saccharine	grs. 45.
Sodium bicarbonate	grs. 25.

the whole to be filtered.—*Journal de Médecine*, February 12, 1888.

Collapse Following the Use of Cocaine.—Lobker is quoted by the *Deutsche medicinische Wochenschrift* of February 2, 1888, in his experience with five cases of severe collapse following the hypodermatic injection of a fresh five per cent. solution of cocaine beneath the periosteum of the jaw, to produce anæsthesia in minor operations, as the extraction of teeth. The quantity used was half the contents of a hypodermatic syringe. Two of the patients had valvular heart disease, and the others had some functional derangement of the sympathetic nerves. Amyl nitrite was useless as an antidote, the patients recovering spontaneously after half an hour or an hour and a half. He advises greater care in dosage, and the use of carbolic acid as a local anæsthetic when possible.

A Simple Cure for Obstinate Hiccough.—Dresch, in the *Bulletin général de Thérapeutique* of January 30, 1888, writes that if the external auditory meati be closed by the finger-tips, and any convenient liquid be swallowed at the time in several deglutitions, obstinate hiccough will cease.

A Remarkable Aneurism.—The Vienna correspondent of the *Medical Press* of February 1, 1888, reports that Dr. Hochenegg, Assistant to Prof. Albert, gave, before the Imperial and Royal Society of Physicians, recently, an account of a case which had special interest, not only on account of the rare malady which had been observed in it, but also because it had given origin to a diagnostic mistake. A man, æt. twenty-one, was admitted into the hospital with an abscess in the region of the left elbow-joint. The patient had, when seventeen years old, suffered from rheumatism, and acquired thus an incompetence of the mitral valve. On careful examination, a painful tumor which pulsated was found to be present in the left elbow-joint. It was therefore assumed that they had to deal with an aneurism of the ulnar artery. After temporary strappings with an Esmarch bandage and digital compression, it seemed that the aneurism underwent a spontaneous retrogressive metamorphosis, when a new pulsating tumor became visible on the left retro-malleolar region, over which the skin presented the appearance of phlegmonous inflammation. The patient suddenly died (and as it became evident at the post-mortem examination) from the bursting of an aortic aneurism. The aneurism in the pit of the elbow did not derive its origin from the ulnar artery, but in the "arteria interossea." Dr. Paltauf, Assistant to Prof. Kundrat, in the chair of pathological anatomy, illustrated this case from the etiological point of view. Several observations had already been made on this disease, and Eppinger had described seven such cases which had been observed by himself, in all of which it had been the question of multiple aneurism in the largest part of the organs, besides relapsing "endocarditis verrucosa and bacteritia" of old date. The aneurisms had, with predilection, their site in those parts in which the arteries became divided, and, according to Eppinger, they were due to local inflammation of the wall of the bloodvessels, produced by emboli from the inflamed endocardium. Also Dr. Paltauf had, during last year, observed four similar cases, and so arrived at the same conclusions. The formation of the aneurism was preceded by an inflammation of the muscular coat of the bloodvessels, owing to which the "membrana elastica" and the "membrana intima" burst, and thus gave rise to the formation of aneurism. In the thrombi which have formed, vegetations of cocci could always be found in great quantities. The tendency toward relief could, in such cases, be the most easily explained by the inflammatory change of the wall of the bloodvessels, which thus favored the formation of thrombi. In some cases miliary aneurisms in the slightest arteries could be found in an immense number.

A Useful Emulsion of Copaiba.—The *American Druggist* for February, 1888, reports the following formula:

R.—Copaibæ	fl. ℥½.
Liq. potassæ	fl. ℥1.
Spir. æther. nit., Tinct. lavand. co., Syrupi	āā fl. ℥½.
Mucilag. dextrini	q. s. add fl. ℥4.

The Treatment of Chronic Pelvic Peritonitis by Chloride of Ammonium and Phosphate of Sodium.—Chéron has used, with good results, ammonium chloride by the mouth, as follows:

Ammon. chlorid.	1 part.
Syrup. simpl.	100 parts.—M.

Sig.—From one to five teaspoonfuls daily, after meals, in water.

In addition he has employed sodium phosphate, hypodermatically:

Sodii phosphat.	℥ 1½
Sodii sulphat.	℥ 1½
Aquæ destill.	℥ 30.

This solution should be freshly made, and carefully filtered.

This fluid he has injected slowly beneath the cellular tissue of the abdomen, where he has thought that he could locate inflammatory products. He also made gentle massage over the site of injection. This treatment was repeated in six or eight days.—*Revue gén. de Clin. et de Thér.*, January 26, 1888.

Menthol Cataract.—Roger and Charrin have recently observed, in animals poisoned by menthol the production of cataract. They have no explanation for the fact. It will be remembered that naphthaline has similar effects.—*Gazette Hebdomadaire*, January 27, 1888.

THE MEDICAL NEWS.

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SATURDAY, MARCH 3, 1888.

ANTISEPTIC IRRIGATION OF JOINTS.

IN the treatment of effusions into the joints, an examination of our text-books shows that splints, rest, extension, compression, and revulsives are the agents mainly relied upon to effect a cure, followed, in cases of serous effusions, as a last resort, by puncture and the elastic bandage, and, in pyarthrosis, by incision and drainage.

In the *Centralblatt für Chirurgie* of December 8, 1877, Rinne describes antiseptic irrigation of the joints for these lesions, and illustrates his paper by nineteen examples of washing out the knee-joint with a three or five per cent. carbolic solution, derived from the practice of Schede. The operation consists, briefly, in evacuating, under strict aseptic precautions, with a trocar or aspirating needle, the contents of the joint, distending the latter with the solution for a few times, and then by rubbing, kneading, and alternate movements of flexion and extension, the joint being half filled, bringing the fluid in contact with every portion of the synovial membrane. The washing out is continued until the fluid returns clear; a splint and the usual outer dressings are applied for six or eight days; passive motion is then instituted until two weeks, as a rule, have expired, when the patient is discharged, but enjoined to wear a flannel bandage for a few weeks. If, on removing the dressings, there is a fresh effusion, complete rest with compression is kept up for several additional days before resorting to passive motion. The cases pursued, first, an afebrile or slightly febrile course, without relapse; secondly, a moderately acute inflammation was set up, resulting in fresh effusion, which, however, rapidly disappeared; and, thirdly, in old cases with thickening of the capsule and perisynovial tissues, and stretching of the ligaments, the effusion persisted, and the operation had to be repeated.

A study of the cases shows that this simple and absolutely safe procedure should replace the other more tedious, and frequently highly unsatisfactory, method in all examples of acute, subacute, and chronic synovitis, whether serous, serofibrinous, or purulent, as well as of acute hæmarthrosis, and of tubercular inflammation in its early stage.

The paper of Rinne appears to have been either overlooked, or to have been regarded with suspicion, since we do not find that primary antiseptic flushing of the joints is even referred to in our standard surgical text-books and manuals. This is to be the more regretted, as a more extended experience has fully confirmed the results attained by Schede, and demonstrated that the operation is as harmless as that of injecting a hydrocele, and that it may, in many instances, do away with incision and drainage.

In the *Deutsche Zeitschrift für Chirurgie*, Bd. xxvii., Hefte 1 and 2, HAGER presents a large array of cases, derived mainly from the General Hospital at Hamburg, which substantiate the statements made in the preceding paragraph. Taking the knee-joint as an illustration of the practice, we glean the following pregnant facts.

Of 100 examples of ordinary dropsy, all were cured, with the exception of one occurring in a tubercular subject, and in only 4 was a repetition of the operation required. In 25 cases of an acute character, as indicated by severe pain, great tension, and, in a few, by fever, and contraction of the muscles, the duration of treatment did not exceed two weeks. In the 75 subacute or chronic cases the average time required for a cure was somewhat longer, and the treatment was supplemented, when the capsule was much thickened, by douches and energetic massage. In 4 of these cases the patients were discharged with an immovable dressing, on account of lateral mobility of the joint and a tendency to genu valgum; while in 7 forced movements were required to restore proper function. The longest duration of treatment was seven weeks.

In the 9 cases of acute and 1 of chronic hæmarthrosis, the latter being a bleeder, washing out the fluid resulted in excellent recoveries.

The operation was practised in 15 cases for suppuration. Of these 2 occurred in pregnant women, and motion was perfect; 3 resulted from rheumatism, of which 1 recovered with normal, and 2 with almost normal, movements; and 10 were due to epiphyseal osteomyelitis, of which 3 had limited motion, and 7 had ankylosis.

Fourteen joints were punctured and irrigated for tubercular inflammation. One patient recovered with normal motion, but partial ankylosis resulted in the remainder.

In addition to these examples of effusion into the knee, the statistics include many other cases in which the knee and other joints were affected, and in which the results cannot be separated. Thus, of 8 instances of acute primary suppuration of the knee and 4 of the elbow, 4 were discharged with normal joints, 2 in immovable dressings, 1 with ankylosis, and 1, a drunkard, died of delirium tremens, after incision and drainage. In 4 examples of suppuration following infectious diseases, the result was perfect in all, the knee having been affected in 2 cases, the elbow in 1, and the shoulder in 1. Of 15 cases of gonorrhœal inflammation, the joints involved being the knee in 9, in 5 of which the fluid was purulent, elbow in 2, wrist in 2, hip in 1, and shoulder in 1, motion was normal in 7, almost complete in 5, limited in 2, and abolished in 1. Finally, of the 12 cases of rheumatic synovitis, the knee being involved in 11, and the elbow in 1, motion was perfect in 9, and almost perfect in 3.

A review of the foregoing facts shows that of 168 cases of antiseptic flushing of the knee, all recovered, and that of 30 examples of purulent effusion, in only 1 did the procedure fail, thereby demonstrating that it should be employed before resorting to incision with drainage. These results are so brilliant that it is to be hoped that the treatment will be fully tested. It may be added that, in the infectious inflammations, including the gonorrhœal, a one to one thousand solution of sublimate is to be preferred to the carbolic solution.

THE USE OF METHYLAL IN DELIRIUM TREMENS.

In the *Therapeutische Monatshefte* for February, 1888, Krafft-Ebing, of Graz, gives brief clinical histories of twenty-one cases in which he obtained quite remarkable results from the use of methylal in delirium tremens, and nearly all of them were discharged in from two to four days entirely well. The sleeplessness, which was naturally the most prominent symptom in nearly every case, aside from the other cerebral disturbances, yielded with remarkable rapidity to the drug, and, along with the banishment of the insomnia, the terrors and nervous excitement were relieved. In every case he used the drug hypodermatically, in the dose of from seven and a half to fifteen grains dissolved in distilled water.

On the other hand, the conclusions of Mairet and Combemale are by no means so favorable, for they found that at the outset of acute mania, doses of as much as a drachm and a half or two drachms failed to quiet the patient, but later on succeeded. In the three cases in which alcoholic mania existed, the results were entirely negative. Further than this, they conclude that the drug, to be of any use, must be given in constantly increasing doses. It is proper to state, however, that Mairet and Combemale gave the drug by the stomach.

Krafft-Ebing was often forced to repeat the hypodermatic dose of the drug within a short time, but a single repetition was generally all that was needed. As the latter writer has had a much wider opportunity for using methylal than his French brethren, and as his results were so uniformly good, the drug is at least well worth trial in this class of cases by our readers.

It will be remembered that methylal is a pure somnifacient, and that it causes no secondary depression, as do morphia and chloral. When given in very large doses, it probably kills by both respiratory and cardiac failure; and very large doses are apparently necessary to cause death.

The larger doses had better not be given hypodermatically, since great pain, and even sloughs, may result. This is evidently one of the reasons for the small doses used by Krafft-Ebing.

The story of the chrome yellow bun poisoning cases in Philadelphia is familiar to our readers through the able clinical study by Dr. David D. Stewart, which appeared in our columns last year. The Court has just tried some of the bakers, and has imposed sentences varying from six to nine months' imprisonment upon the defendants who had used chromate of lead to give an attractive color to their cakes and buns. In view of the fact that they had already suffered severely in the loss of business, and one of them in the death of his own children and in his own impaired health, and also in view of their probable ignorance of the very poisonous nature of the adulterant, the Court tem-

pered its justice with mercy. The parties who prepare and put upon the market these poisonous adulterations must, however, know full well their toxic character, and it is to be hoped that the law will hold them to a rigid accountability.

THE Loomis Laboratory of the University of the City of New York was opened for inspection by the public, on last Monday evening. The Laboratory building, situated at 410 East Twenty-sixth Street, occupies a lot thirty-five by ninety feet, and is five stories in height. The first story is devoted to physics and materia medica, the second to chemistry, the third to physiology and histology, the fourth to pathology, and the fifth to bacteriology. In addition to the facilities for the instruction of undergraduates, every convenience will be afforded to those who are interested in scientific medicine to prosecute their studies and researches. It is reported that the anonymous donor of the Laboratory proposes to endow it with a sufficient income to cover the expense of its maintenance.

THE Court of Claims, last Monday, overruled the action of the accounting officers of the Treasury in disallowing the claim of Surgeon John S. Billings, U. S. A., for mileage, while travelling in Europe under orders of the Secretary of War. The claim was for about $1500, and was disallowed on the ground that there was no legal authority for the expense. The Court held that the Secretary of War had ample authority in the premises, and that the accounting officers had no right to interfere. Judgment was given in favor of the claimant for the full amount.

AT a recent meeting of the Society of Physicians of Vienna, von Bamberger announced the payment to the Society of 12,000 florins, the legacy of the late Dr. Da Costa Alvarenga, of Lisbon. It will be remembered that the same generous donor left similar bequests to the Berlin Medical Society, and to the College of Physicians of Philadelphia. The latter society has, also, we are informed, received its legacy, amounting to over $4100.

ALTHOUGH not prevalent, except in California, this seems to be a year of wide distribution of smallpox, the disease having been reported, since January 1, 1888, in Connecticut, New York, Delaware, Ohio, Indiana, Michigan, Wisconsin, Iowa, six places in California, Tennessee, and Louisiana. Vaccination and revaccination are preventives of smallpox, and if people keep thoroughly protected in this way, no epidemic of the disease can occur. Now is the time for those who have not been vaccinated or revaccinated within the last five years to take this precaution.

THE Fourth International Otological Congress will be held in Brussels, Belgium, from September 10 to 16, 1888, immediately after the meeting of the German naturalists and physicians in Cologne, Germany.

AMONG the forty-two foreigners who received the title of Doctor of Medicine in Paris during the past year were seven Americans. The degree was given to four women, two of whom were Americans.

The number of medical students of all nationalities in Paris during the year was between 3000 and 4000. Next on the Continent comes Vienna, with 2178; Munich, 1211, and Berlin, 1140.

THE Seventh Congress of the German Society for Internal Medicine will be held at Wiesbaden, April 9–12, 1888, under the presidency of Leube.

We are requested by Dr. Pfeiffer, Permanent Secretary of the Congress, to announce the following subjects and the names of those who will preside over their discussion :

Chronic Diseases of the Heart Muscle, and their Treatment, Oertel and Lichtheim; Alcohol as a Therapeutic Agent, Binz and von Jaksch ; The Prevention and Treatment of Cholera, Cantani and Pfeiffer.

Contributions are also announced from Rumpf, on Dislocated (Wandering) Heart ; Unverricht, on Experiments on Respiratory Mechanism ; Liebreich, subject not yet announced ; Adam Kiewicz, on Multiple Degeneration of the Spinal Cord ; Jaworski, on The Dietetics of Dyspepsia ; Stiller, Treatment of Basedow's Disease and the Diagnosis of Kidney Tumors ; Pfeiffer, on Urinary Secretion and the Solution of Uric Acid ; Binswanger, The Pathogenesis of Epilepsy ; Jürgensen, Cryptogenetic Septic Pyæmia.

THE Alumni Association of the Long Island College Hospital held its annual meeting on the 27th ult., when it was addressed by Dr. Abraham Jacobi, in a lecture upon the heart and bloodvessels of the young.

REVIEWS.

Rectal and Anal Surgery, with a Description of the Secret Methods of the Itinerants. By Edmund Andrews, M.D., LL.D., Professor of Clinical Surgery in the Chicago Medical College, and E. Wyllys Andrews, A.M., M.D., Surgeon to Mercy Hospital. 8vo. pp. x. 111. Chicago: W. T. Keener, 1888.

The chief object in writing this book would appear to have been the desire to animadvert upon those peripatetic quacks who find ample reward in storming the breaches of credulous humanity. Its authors have been at the pains of examining into the secret methods of these gentlemen and mercilessly and most properly expose the very slender scientific basis upon which their treatment rests. In so doing they have supplied information which would otherwise have been inaccessible to very many of the profession.

But while the subject to which we have referred seems to be the chief one the Doctors Andrews have had in view, it is not so ostensibly, but comes out in the course of chapters which systematically treat of some diseases of the rectum. The advice contained in these chapters is always sound, although we fail to find anything particularly new or fresh in the book; it is profusely supplied with illustrations, those taken from Esmarch's work being valuable.

The Efficacy of Coca Erythroxylon. Notes and Comments by Prominent Physicians. 12mo. pp. 61. New York, 1888.

In this little volume, which is issued as a supplement to his "Treatise on Coca," M. Mariani has gathered the testimony of a large number of the profession in various parts of the United States as to the therapeutic value of the preparation of the wine of coca known as "Vin Mariani." One of the secrets of the admirable character of this tonic is, that it is made with a pure, fine quality of grape wine, of M. Mariani's own production, which blends admirably with the fresh selected coca leaves, which alone are used. This brochure, we are informed, will be forwarded to any physician upon application to Mariani & Co., New York.

SOCIETY PROCEEDINGS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, February 8, 1888.

The President, J. Solis-Cohen, M.D., in the Chair.

Dr. Mordecai Price reported

A CASE OF NEPHRECTOMY FOR GUNSHOT WOUNDS.

Maggie McG., of Avondale, Chester County, Pennsylvania, aged fourteen years, white, pale, anæmic girl, was accidentally shot on Wednesday, December 21, 1887, at 8 o'clock in the morning, while handling a four-barreled Sharp's pistol, 30 calibre. She had the muzzle of the pistol turned toward the right side; while attempting to raise the lock with the thumb of her left hand it slipped from her hold and fired the cartridge, which entered her body at the junction of the ninth rib with the cartilage, passed directly through the left lobe of the liver, entered the upper third of the kidney, and passing through lodged in the deep muscles of the back near the spine. When he first saw her—twenty-four hours after the accident—her condition was an exceedingly alarming one: pulse 150; temperature 103°. She had passed, soon after the accident, a large quantity of blood from the bladder. But at the time Dr. Price saw her she was not passing blood from the bladder, showing that if there was still hemorrhage it was into the peritoneal cavity, and also that the bladder was not wounded, for the urine was normal.

Symptoms of peritonitis were well marked; abdomen considerably distended. He had no difficulty in coming to a conclusion as to what was best to be done. Dr. Charles Penrose and himself at once advised the removal of the kidney. This was concurred in by Dr. Hudders and Dr. Ewing, the attending physicians. The patient was etherized and the abdomen opened. A large quantity of clotted blood was removed from the abdomen, the wound of the liver was examined, both entrance and exit. No hemorrhage was found coming from it. The abdominal incision was then enlarged, and the blood removed from the region of the right kidney, when it was plainly seen that the hemorrhage was from that organ. The kidney was examined and found to have a hole in its upper third, large enough for a finger to enter. He then made a button-hole opening through the peritoneum with scissors, introduced the finger and enlarged the opening by tearing, and without much difficulty enucleated the kidney from its bed. The ascending colon was pushed back or inward toward the spine, and the opening in the peritoneum, through which the kidney was removed, was made in such a manner that the vessels of the bowel were not disturbed. The ligaturing of the pedicle was exceedingly difficult, Dr. Penrose having to tie the ligature the full length of his hand in the peritoneal cavity. Two ligatures were applied, one through the pedicle tying it in halves, the other, a large, heavy ligature with one knot; then the kidney was cut away and the ligature tightened before making the second knot. The stump of the pedicle, or button, as it is called, to keep the ligature from slipping, had a portion of kidney structure in it. There was complete irrigation. A glass drainage tube was left in the kidney wound and the abdomen closed. The patient rallied nicely from the ether, and, on the morning of the second day, Epsom salts was given in large and repeated doses, but could not be retained. On the morning of the third day, a second attempt was made to have her bowels moved. Rochelle salts was used, followed by two or three evacuations and passage of flatus by the bowels, which gave great relief. Patient did uninterruptedly well, with temperature not over 102° up to the time (eighth day) of the removal of the glass drainage tube, when rubber drainage was substituted, and was left too long, producing quite a rise of temperature and fetid pus at the bottom of the tube, which was at once relieved by the attending physicians removing the tube and cleaning the drainage track.

On January 4th Dr. Price was telegraphed for, patient's temperature having been up to 103° the previous night. Abscess was suspected either in the liver or the muscles of the back. He met Dr. Hudders and Dr. Ewing, her attending physicians, in consultation, and found no positive indication of abscess—the girl being in a[mode-

rately good condition at the time, with a slight tendency to diarrhœa—temperature 100 4/10°; pulse 100. She continued to do well until the 11th of January, when Dr. Ewing wrote him. "Some new trouble seems to be developing in our patient, her temperature is 103 3/0°, her liver is enlarged and tender; complains of pains in left side and shoulder." On the 12th there was quite a gush of pus and bile from the drainage tube opening—about two ounces—this at once relieved her of high temperature and quick pulse. She has had many changes in the last three weeks, with slight discharge of bile and pus from the drainage tube, but has constantly, but very slowly improved. Her physicians have given her every attention, and to them he was greatly indebted for the care they have given her; nothing but their interest in the case could compensate them for their labors. For the result in this case he is also greatly indebted to Dr. Charles Penrose, for assistance rendered during the operation. Length of incision six inches. Kidney removed for hemorrhage.

DR. EWING, of West Grove, had nothing to add, except that the condition of the patient is better than Dr. Price states. At the last dressing there was only a drachm of pus discharged. There is refreshing sleep; temperature is normal in the mornings, though there is a slight evening rise; appetite is good; the bowels are regular. He felt that recovery is assured. This child was on the verge of death when the operation was done—the pulse was 150; temperature 103°; the extremities were cold; the body covered with clammy perspiration. Improvement was manifest at once.

DR. J. B. ROBERTS said that while he could not speak from experience, it has occurred to him, and the same suggestion has been made by others, that the difficulty of tying the stump so far down, and behind the peritoneum, might be lessened by getting the kidney enucleated and then twisting it so as to apply torsion to all the renal vessels, veins as well as arteries. Afterward the ligature might be applied with more ease, and this whether abdominal or lumbar incision be made, though in the absence of experience he judged that it would be easier to do this with a lumbar incision. He presumed that there was no intestinal wound in this case, no mention having been made of any.

In connection with the operation by lumbar incision, he might refer to an error of his own, which illustrates the mistakes our lack of familiarity with operations in this region may lead us into. The operation was undertaken for a supposed stone in the kidney; but as no stone was found, it resolved itself into an exploratory incision and acupuncture of the kidney. The ordinary lumbar incision had been made with care, and he had come upon the kidney with ease. It was suggested that he should enlarge the wound upward and explore the upper end. A few muscular fibres stretched across the upper angle of the wound, and these he divided by a small cut, when a rush of air into the pleural cavity informed him that he had cut a small hole in the diaphragm. The accident did no harm; it was easily remedied with a few sutures; and the dyspnœa that persisted for a few days was attributed by the patient to the tightness of the abdominal bandage. He was not sufficiently familiar with operations in this region to realize to what extent the posterior attachment of the diaphragm to the vertebræ dips down here, especially when he saw, as he did, the main mass of the diaphragm bulging down as a great sheet in front of the point where he made the additional incision.

The PRESIDENT asked how Dr. Price accounted for the bile.

DR. PRICE could not say where the bile comes from, unless from the liver. The wound in the liver is about two inches from the gall-bladder. The ball took a diagonal course and came out at the margin of the liver, and then entered the kidney. He did not know what the effect of twisting the pedicle would be. He could bring the edge of the kidney within an inch of the wound. He considered the abdominal incision the proper one. In this case there were several considerations in its favor. Hemorrhage had already taken place into the peritoneal cavity; it gave the chance to examine for wounds of the liver and intestines. He found only wounds of the liver and kidney. The liver was not bleeding, and he had only the kidney to deal with. In view of the discharge of pus from the liver, he now believes that it would have been better to insert into the track of the bullet in the liver a small glass drainage tube—that of Bantock, which is of about the same diameter as the ball—and drained it. If, as has been stated to him by Dr. Wood, there has been no case of recovery from bullet-wound of the liver, we are not going to make the prognosis any worse by draining, and he thought we might make it better.

DR. FRANK WOODBURY, in connection with the case reported, briefly related the notes of

A CASE OF NEPHRECTOMY FOR PYONEPHROSIS,

performed for him by Drs. Deaver and Agnew, last year, at the German Hospital:

The woman first came to him in the spring of 1886, for vesical irritation, with bloody urine. She had had several such attacks following exposure to cold and wet some two years previously. In September of the same year there was another attack. The urine contained pus, but no blood. He washed the bladder with boric acid and alkalies, and subsequently with a weak solution of nitrate of silver. The pus continued, epithelial tube-casts appeared, and a tumor slowly developed in the right side. Dr. Deaver saw the case in consultation and concurred in the diagnosis of pyonephrosis of right side consecutive to inflammation of the bladder. Dr. Agnew saw the case on December 25th, and agreed in recommending operation. On January 10, 1887, nephrectomy was carefully and skilfully done by Drs. Deaver and Agnew. Death occurred five days later, from exhaustion.

DR. DEAVER said that the steps of the operation were lumbar incision, which exposed the kidney closely adherent to all parts, especially to the under surface of the liver and to the iliac vessels. It was distended with pus, six ounces being evacuated prior to its removal. The mass was very large, and to deliver it without wounding the peritoneum required great care. He now regretted that he extirpated, as he believed it would have been better surgery to incise the kidney, wash out the abscess cavity, insert a drainage tube, and to dress it antiseptically as in nephro-lithotomy.

Much difficulty was experienced in ligaturing the pedicle, as in Dr. Price's case. He believed the abdominal incision to be preferable in dealing with greatly enlarged kidneys. In performing the abdominal operation,

the mesocolon descending, instead of the internal mesocolon, which carries all the bloodvessels, should be divided, thus avoiding the danger of gangrene of the gut. Delivery is easier, and better access is given to the adhesions, especially those to the iliac vessels.

Dr. J. B. Roberts said that the case of Dr. Woodbury suggests some studies he made and reported to the American Surgical Association a few years ago. Something can be gained in the way of diagnosis in the early stages of perinephritic abscess and other lesions in this region by the study of certain trains of symptoms, pointing to the localization of the disease. Inflammatory affections about the upper end of the kidney, for example, will often show on careful examination a limited pleuritis; when the lower part is involved, there is apt to be spasm of the psoas muscle with flexion of the thigh; in the middle part, pressure on the renal vein and other vessels may cause an otherwise inexplicable albuminuria.

Dr. Penrose reported a case of

OBSTRUCTION OF THE BOWEL BY CANCEROUS MASS; OPERATION; WITH FORMATION OF ARTIFICIAL ANUS.

The operation was performed seven days ago. There had been complete obstruction of the bowel for twenty-eight days prior to operation. Fecal vomiting occurred two days before operation. At time of operation there was immense abdominal distention, a temperature of 101°, and a pulse of 150. An abdominal incision four inches in length was made, revealing complete occlusion of the descending colon by a cancerous mass twelve inches long, involving also the meso-colon.

Resection was made of the gut and meso-colon, and all indurated tissues were removed. The two ends of the divided gut were brought together laterally and united to each other, and the long axis of the abdominal incision, with continued suture, so as to make an artificial anus. A bucketful of fluid feces was discharged immediately after the operation. Relief was immediate; quiet sleep lasted for thirty-six hours. At present the abdomen is flat; the pulse is 80 to 90; temperature 99°; there is no pain; the tongue is clean; appetite good, and the patient doing remarkably well.

NEW YORK ACADEMY OF MEDICINE.

Section on Obstetrics and Gynecology.

Joseph E. Janvrin, M.D., Chairman.

Stated Meeting, February 23, 1888.

Dr. H. J. Garrigues read a

REPORT OF CASES OF LAPAROTOMY FOR RUPTURED UTERUS.

(See page 225.)

Dr. Robert A. Murray read a paper on

THE INDICATIONS FOR THE USE OF THE INTRA-UTERINE DOUCHE AFTER PARTURITION.

He commenced by giving a report of a case which he was summoned to see in consultation in a neighboring city, in which there was a febrile condition, believed by the physician in charge to be of malarial origin. He found the patient almost in a state of collapse. The temperature was 104½°, the pulse 130, the face pinched, and the lochia scanty and fetid. There were intense headache, considerable abdominal pain, marked tympanites, and a tendency to delirium. On making an examination he ascertained that there were septic endometritis and peritonitis present. The vulva was swollen, the cervix uteri badly lacerated, and the perineum partially ruptured; and in the interior of the uterus he found portions of the placenta adherent. Against the advice of the attending physician he made first a vaginal injection, and then removed the adherent placenta, and used the intra-uterine douche. This was followed by an almost immediate reduction of the temperature. Reaction was slight, and in four weeks the patient was restored to health. The physician thought that the powers of nature were sufficient to deal with the retained placenta; but Dr. Murray felt confident that if this had not been removed, and the mode of procedure mentioned not adopted, the patient would undoubtedly have succumbed to the septicæmia from which she was suffering when he was called in. He said that he mentioned the case as an illustration of the prejudice that still existed in the minds of many medical men against the use of the intra-uterine douche.

He then went on to speak of the indications for the employment of this measure, and first in the way of prophylaxis. Even in cases of non-instrumental labor it is sometimes called for if the labor has been tedious. Such long labors are frequently followed by fever, and if the os is found to be patulous, and the finger after being withdrawn from the uterus has a necrotic odor, even although no remains of placenta or membranes, or no clots can be detected, the use of the intra-uterine douche is indicated at least once. It not only has the effect of closing the vessels by the stimulating effect of the hot water employed, but also prevents septic absorption. It should also be resorted to when instruments have been used, or the hand introduced into the uterus for turning, etc., in cases of placenta prævia, and in rupture of the uterus. Also in those cases in which the patient has a chill during confinement; this chill being the precursor of fever.

In the treatment of many cases of puerperal fever it constitutes the most valuable agency at the command of the accoucheur. All cases of fever depend on septic absorption, and the uterus should be thoroughly explored for clots or adherent tufts of placenta. Especially should such exploration be made if the lochia are fetid. In many cases, however, there is no fetor about them, owing, no doubt, to the effect of the antiseptics used. In all such cases a careful examination of the uterine cavity should be made, in order to show that no source of sepsis remains within it. In the treatment of abortion, and after the induction of premature labor, the intra-uterine douche is also often of much service.

The only articles needed for carrying out the treatment are a fountain syringe with a long rubber tube attached, one intra-uterine glass tube (the Chamberlain tube is the one preferred by Dr. Murray), a rubber blanket, a thermometer to gauge the temperature of the water, a rubber cloth to protect the bed, etc., a Thomas blunt curette, and a placenta forceps, the Simpson forceps being the one preferred. The patient is gently moved (not lifted) to the side or foot of the bed, and placed in the lithotomy position, with the rubber cloth around her waist, and a blanket over her. The intra-uterine tube is guided by two fingers, and the vagina first washed out. When the cavity of the uterus is injected an assistant should

keep the organ contracted with his hand, but should be careful not to press the organ downward. The flow is to be continued until the returning fluid is entirely devoid of odor or color. The solutions which Dr. Murray generally employs are carbolic acid, 2 to 100, or bichloride of mercury, 1 to 3000 or 5000.

He next spoke of some of the objections which have been urged against the use of the intra-uterine douche, such as the danger of causing shock and collapse, peritonitis, hemorrhage, the formation of clots, and resulting embolism, of wounding the endometrium, of introducing septic matter into the uterus, of the entrance of air into veins, and of poisoning the general system by the absorption of the antiseptics used. The endometrium, he said, will not be wounded if the douche is properly managed; and shock, collapse, and peritonitis may be avoided if the uterus is firmly grasped by the assistant. The majority, if not all, of the cases of this kind reported have been those in which iron has been used as the styptic. Entrance of air into the veins can be prevented by keeping a continuous flow from the syringe, and the hot water of the douche itself acts as a strong preventive of hemorrhage by exciting uterine contractions. Dr. Murray also recommends that ergot should be administered after the douche, by way of precaution against hemorrhage.

The intrauterine douche is by no means to be employed in every case of midwifery, but only in the limited number embraced in the class of cases above referred to. Finally, the physician should always administer the douche himself, and never permit it to be given by the nurse.

DR. ANDREW F. CURRIER said that he thought none of those present would deny that the development of the antiseptic theory has forever done away with the idea that nature will successfully take care of those cases of sepsis arising from retained portions of the placenta, membranes, etc. At the same time experience has taught us the necessity of proceeding with great caution in such cases, and the applications required should be made in such a way that the danger of the procedure may be almost wholly removed.

Dr. Currier said that, in general, his rule is to use a vaginal douche if the uterus contracts readily, and then to apply a Garrigues antiseptic pad, which he has usually found to act very satisfactorily. If afterward, however, a high temperature, and other indications of sepsis show themselves, he resorts to the intra-uterine douche. He had found the Chamberlain tube excellent, and the only improvement that he had to suggest in regard to it was that it should be made of some flexible material, instead of glass. In some of the more serious cases he would advise that the tube should be allowed to remain in the uterine cavity until all evidences of sepsis have passed away, as it affords a valuable means of drainage. In a case of retained menses, in which the Chairman of the Section, Dr. Janvrin, was called in consultation, this plan had been pursued with excellent results. It is much more convenient simply to adjust the rubber tubing to the intra-uterine tube from time to time, than to have to reintroduce the latter. He has also found this method of great value in some cases of abortion.

DR. H. J. BOLDT spoke of the position of the patient during the administration of the douche. While that recommended by Dr. Murray is entirely unobjectionable if but a single injection is to be given, he thought that if the douche is to be repeated, some other is preferable. His method is to allow the patient to remain in the ordinary position on the back in bed, and to place under her an ordinary bed-pan or a douche pan. The rubber tube is passed through the handle of the bed-pan, and instead of the Chamberlain intra-uterine tube he employs a gutta-percha male catheter of large size, to which the rubber tubing is attached. By this means constant irrigation of the cavity of the uterus can be maintained as long as is desired. Dr. Boldt does not use either carbolic acid or bichloride solution, but simply hot water, of a temperature of 110° or 112°, and he thinks this decidedly preferable for constant irrigation. Such irrigation has this advantage, that it can be carried on for an indefinite period without the presence of the physician being necessary after the douche is once commenced.

He then went on to say that he employs the intra-uterine douche in every case in which he is called in consultation where he finds that the attending physician has made use of no antiseptic precautions during the labor, and in such cases, where only one injection is made, he prefers bichloride of mercury solution as the fluid. It was surprising, he thought, that notwithstanding all that has been said and written of the advantage of antiseptics in midwifery practice, so many physicians still persist in attending their confinement cases without employing them, even when instrumental delivery or operative procedures are resorted to.

DR. MALCOLM MCLEAN called attention to what he considered a serious defect in many of the Chamberlain tubes that are sold in the shops, viz., that the orifices for the passage of the fluid injected extend for a distance of six inches or more from the extremity of the tube. When this is the case a considerable portion of the fluid is apt to escape into the vagina, and the results are very unsatisfactory. It is important to see, therefore, that the holes are all within two inches of the extremity of the tube.

DR. A. PALMER DUDLEY spoke of the value of ergot in the prevention of sepsis, and said that he thought Dr. Murray made a mistake in postponing its administration until after the use of the intra-uterine douche, sepsis having already occurred, instead of giving it before any such condition had arisen. Dr. Murray had referred to the necessity of making pressure upon the uterus to prevent distention of the organ while the injection was being made; but he believed that if the uterus from the first was properly contracted there was very little danger of sepsis. He always made it a routine practice to administer one or two drachms of the fluid extract of ergot after the birth of the child in every case of midwifery that he attended.

In regard to antiseptics Dr. Dudley said that he did not now have as high an opinion of their value as formerly, and it is a fact that many of those who practise abdominal surgery have entirely discarded them, and yet have as good results as their confrères who still employ them. In the intra-uterine douche he believed that boiled water of a temperature of 110° is all that is necessary. Both carbolic acid and bichloride solutions, if used in sufficient strength to be of any value as germicides, are irritants, and he thought that we are coming to realize that if we exercise proper care in our cases, and do not bring dirty hands or dirty instruments

in contact with the patient, there will be very little use for the intra-uterine douche.

Dr. Garrigues said that in most points he was in entire accord with the author of the paper. After a very considerable experience with both carbolic acid and bichloride of mercury, he very decidedly preferred the latter as an antiseptic. As to the danger of poisoning by the chloride, he had never met with a single case in which there was any untoward result from its use, and he believed that in the cases of poisoning reported by others, either a very strong bichloride solution or an immense quantity of fluid was employed. He is in the habit of using a solution of the strength of 1 to 4000, but one even so weak as 1 to 10,000 has very decided germicidal properties. As a rule, it is advisable to use a rather stronger solution in hospital than in private practice. He did not think there is the slightest danger attending the employment of the bichloride, provided that a strength of 1 to 4000 is not exceeded and that too large a quantity of the solution is not used. The amount should never be greater than three pints, and in the majority of instances one quart is sufficient.

He had found that it is not necessary to repeat the douche so often if after giving the injection an iodoform pencil containing ninety grains of the drug is inserted into the uterus, and since using such pencils he had found that only one douche is required in the twenty-four hours. It is important that the patient should always be on the back when the douche is used, since if she lies upon the side there is danger that some of the fluid may by means of a dilated Fallopian tube get into the peritoneal cavity. In order to get rid of the superfluous amount of bichloride solution the uterus ought always to be squeezed after the injection has been made. It is not necessary that the intra-uterine douche should be resorted to in every case of fetid lochia, as it may be found on examination that the source of the fetid condition is in the vagina.

Dr. Paul F. Mundé said that for some years past he had had very decided convictions as to the circumstances in which the intra-uterine douche should and should not be employed. If, on being called to any puerperal case in which there was an offensive discharge associated with a rise in temperature, he was not satisfied with inspecting the vulva and vagina, but proceeded to insert his finger into the uterus, when he was almost sure to find a portion of retained placenta or some putrid blood-clots, he removed these with the finger or blunt curette, and then thoroughly scraped the uterine walls; after which he proceeded to irrigate the cavity. For this purpose he uses either the Chamberlain glass tube, large or small size, or, what is perhaps better, the recurrent catheter of Fritsch, and the fluid that he injects through it is either lukewarm carbolic acid solution, one to two per cent., or simple warm water.

Bichloride of mercury solution, in any strength, except so weak as to be of mythical value, Dr. Mundé considered entirely inadmissible, on account of the risk involved. The number of deaths by mercurial poisoning from the use of the bichloride in this way has now become so large that the danger can no longer be disregarded. Only recently a case has been reported in Germany in which a fatal result has occurred from the use, but once or twice, of an intra-uterine injection of a bichloride solution of the strength of 1 to 4000. Furthermore, he did not believe that such a solution within the uterus is of any antiseptic value whatever. By the time that it comes in contact with the uterine walls septic matter has already been absorbed, and the process of infection has gone too far to be interfered with by any such local application.

If nothing is found in the uterus on exploring its cavity with the finger, it is well to give a single intra-uterine douche; but it is useless, and may give rise to serious trouble, to go on with the douche afteward in such cases. If there is a hemorrhagic tendency, Dr. Mundé is in the habit of employing an injection of equal parts of hot vinegar and water; and after any injection he always squeezes the uterus dry in order to secure proper contraction of the organ. He then spoke of the danger of causing signs of collapse by repeating the douche, and said that if there were no indications of its repetition, this should by all means be avoided. There is also the possible danger of injecting air into the veins. He had seen the use of the douche persisted in even in cases where there was such trouble as localized peritonitis or cellulitis, which constitute a positive contra-indication to this measure. The mere rise of temperature or the occurrence of fetid lochia is not, as a rule, sufficient to call for the intra-uterine douche, but if both these conditions are present, it should be given at least once. In conclusion, Dr. Mundé said that he could not see any possible advantage in the iodoform pencils advocated by Dr. Garrigues, and especially since it is somewhat problematical in the light of recent investigations whether iodoform is an antiseptic agent at all.

Dr. Murray, in closing the discussion, said that the dangers referred to by Dr. Mundé are principally liable to be met with where the intra-uterine injections are made late. He believed with him that the diagnosis should always be made, if possible, with the finger; but if on withdrawing the finger it is found to have a necrotic odor, indicating dead tissue, even though no clots or remains of placenta or membranes can be detected, he thought that the intra-uterine douche should be resorted to. A patulous condition of the os and a necrotic odor may, in general, be stated to constitute the indications for the injection.

He doubted whether hot water alone is sufficient. He believed in the cleansing properties of antiseptics; but, more than that, they destroy tissue which left undisturbed would become septic. It is in this way that they tend to prevent further absorption of septic material in cases where the system has already, to some extent, become infected. In his opinion, therefore, the use of the bichloride of mercury is sometimes essential.

In regard to ergot, Dr. Murray said that, like Dr. Dudley, he gives it as a routine practice in every case of midwifery that he attends; but the closing of the mouths of the uterine vessels, just after the birth of the child, will not prevent their relaxing afterward.

CORRESPONDENCE.

PRESERVATION OF SEVERED DIGITS.

To the Editor of The Medical News,

Sir: Under this caption Dr. W. A. Miner (*The International Journal of Surgery and Antiseptics*) calls attention to the importance of the preservation of crushed or severed digits. "Since it is the routine practice of many doctors to snip off a partially severed finger, or

remove one if badly crushed, without making an effort to save it, any facts that will aid us in our attempts to prevent such a loss should be carefully studied. Especially is this the case since there have been published within a year, some half dozen cases of digits severed and afterward reunited. That there have been some failures, counts for nothing. There have certainly been no reports of any unpleasant results following the attempt. The public, too, are beginning to realize that the useful little member is sometimes needlessly sacrificed. Another case can be added to those already published which presents one unusual feature—the long time that elapsed before the severed end was adjusted to the stump." "A boy while splitting wood, cut off part of his right thumb. It dropped to the ground and he ran into the house. The mother hunted up the father, who came to the barn, harnessed the horses, wrapped the piece of thumb and the stump up in a rag, and drove nearly three miles to the doctor. Fully an hour and a half elapsed before I saw him. I removed the bandage and found the thumb lying loosely in the bandage and covered with sand and dirt. I washed it off and secured it to the stump. It united promptly, and two years afterward it would have been hard to tell which thumb had been injured."

I wish to add another case which I think is equally remarkable. Twenty-four years ago while playing with my cousin—a girl eight years of age—I had the misfortune to cut off the end of her finger. We were playing with a hay-cutter, I was turning the crank and she was pushing in the hay. She pushed her hand a little too far, and the result was she lost a portion of her second finger. It was taken off smoothly just back of the nail. We both ran to the house, where the wounded finger was hurriedly dressed, and I was despatched for the doctor, who lived over a mile away. He happened to be at home, and we returned as soon as possible, but it was more than an hour from the time the accident occurred before he arrived at the house. At the earnest solicitation of my mother, and as he said against his better judgment, he finally consented to attempt to secure the severed piece to the stump. He disclaimed all responsibility in the case, however, and said it was worse than useless, as it would surely mortify, as it had been severed so long, and was stone-cold and blue. He also feared blood-poisoning.

Suffice it to say that it united promptly—that is, the bone did, the flesh on the under side of the finger sloughed off, but afterward filled in nicely by granulation. The nail also sloughed away, and a new nail formed, and two years afterward no one could tell from the dorsal surface which finger had been injured. On the palmar surface there was a well-marked cicatrix running around the end of the finger, and it seemed to taper a little more than the corresponding finger on the other hand. As this was her right hand, it was extremely fortunate that the attempt was made to save the severed piece. She never experienced the slightest difficulty in playing the piano, which made a pretty good test as to the usefulness of the finger.

C. L. Dodge.

Kingston, N. Y., Feb 25, 1888.

NEWS ITEMS.

The Case of His Imperial Highness, the Crown Prince of Germany.—Sir Morell Mackenzie forwards to the London weeklies of February 18, 1888, the following statement:

His Imperial Highness, the Crown Prince of Germany, having expressed his wish that I should now place on record my opinion of his case, the opportunity is afforded of correcting some of the statements which, from time to time, have been inaccurately attributed to me.

The general idea is that I am of opinion that the disease from which His Imperial Highness is suffering is not cancer;[1] the view on the other hand, which I have consistently maintained is, that there never has been any proof of the existence of cancer.

To enter more in detail: When I arrived in Berlin, last May, I stated to my colleagues that, in my opinion, the appearances seen in the throat were of a negative character—that is to say, that the disease might be either benign or malignant, and that its nature could only be determined by microscopical examination. A portion of the diseased tissue having been taken away by me from the throat of His Imperial Highness, it was submitted to Professor Virchow, who could not detect in it anything of a malignant nature. Repeated examinations by Professor Virchow of other portions removed by me yielded similar results.

In the month of July, whilst His Imperial Highness was staying in the Isle of Wight, I pointed out to more than one of his august relatives that the danger that I most dreaded was the occurrence of perichondritis at a future date, and three months later this fear was proved to be well grounded. At the end of October and early part of November, entirely fresh symptoms appeared, and at that time the local disease presented an appearance which was consistent with the diagnosis of cancer. It was then impossible to obtain any fresh microscopical evidence in the matter, and I considered it safer accordingly to treat the case as one of a malignant nature; at the same time, however, I drew up and submitted to my colleagues a *protocol*, in which I stated that although the disease at that moment looked like cancer, I could not agree that the malady was proved to be malignant until a further microscopical examination had been made. The document in which I set forth my views was forwarded to Berlin to be placed in the State Archives. Although the unfavorable symptoms then present were explicable on the ground of the existence of cancer, yet it was clear to the majority of the physicians at that time in attendance that perichondritis had supervened.

In the middle of December, however, the unfavorable signs had passed away, and there were no longer any clinical symptoms of cancer. Microscopical evidence on the subject was, however, still wanting. This was furnished at the end of January, when a slough was expectorated from the very spot which had presented such a highly suspicious appearance in November. This slough was most carefully and repeatedly examined by Professor Virchow, and the result (which is now published) again shows that cancer could not be detected.

To recapitulate: In my opinion the clinical symptoms have always been entirely compatible with non-malignant disease, and the microscopical signs have been in harmony with this view. I need only add that although in nearly every case of laryngeal disease it is possible at

[1] In this statement the words "cancer," "cancerous," and "malignant," are used synonymously.

the first inspection to form an accurate opinion as to the nature of the disease presenting itself, yet, in a few rare instances, the progress of the complaint alone permits its character to be determined. Unfortunately, the case of His Imperial Highness is among the latter number, and at this moment medical science does not permit me to affirm that any other disease is present than chronic interstitial inflammation of the larynx combined with perichondritis.

The Lancet, in commenting on the above, says that it amounts to this, that Sir Morell Mackenzie sees no absolute proof that the disease is malignant or cancerous in nature. What all Europe is anxious to know is, whether Sir Morell Mackenzie and the eminent German doctors associated with him can find proof that the disease is certainly not cancer, and this knowledge appears, for the present at least, to be unattainable. One of the most painful circumstances in the case has been the uncertainty as to the diagnosis ever since May last. And now, after nine months, the same uncertainty continues. We would gladly, if we could, read Sir Morell Mackenzie's statement in another sense; but it is very precise and clear, and it is impossible to find in it anything that implies that in his opinion the disease is certainly not cancer. The only consolation to be derived from this latest report is the very small one that the opinion is, at any rate, less unfavorable than if it had been a confirmation of the diagnosis of cancer. Professor Virchow's report is purely negative, and the material submitted to him was evidently incapable of throwing any light upon the nature of the disease.

A Babies' Hospital a Nuisance.—Suit has been brought in New York City to put an end to the maintenance of a babies' hospital in a residential quarter, on the ground that it is a nuisance and dangerous to the health of the neighborhood.

Precautions to be taken when Attending Smallpox Patients.—The Iowa State Board of Health publishes the following directions, in its bulletin for February, 1888:

Several physicians have asked us what are the best means of protecting themselves—their person and clothing, when they are called upon to attend cases of smallpox, so that without risk of carrying the disease, and infecting others, they may continue their general practice.

The following plan we believe to be perfectly safe: There should be worn a loose gown of glazed muslin, long enough to cover the feet, buttoning closely at the neck and wrists, and having a waistband; the head—all the hair, if possible—covered by a cap of like material. This should be put on out-of-doors and taken off on returning from the house. After removing the cap and gown, the hands, face, and all the exposed parts of the body should be washed well in soap and water and then rubbed freely with a weak solution of corrosive sublimate, the best germicide known. Physicians should not be expected to make unnecessary visits, as usually with good nursing and care, but little medicine will be required. Wearing apparel, such as coat, vest, and pants, that cannot well be washed or boiled, can be thoroughly disinfected by steam, hot air (212° F.), or by sprinkling them and pressing them slowly and thoroughly with a flat-iron as hot as can be used without burning the goods. But little confidence can be put in sulphur fumigations.

The Age of University Professors.—A movement is on foot in Paris to enact a limit of age for University professors. Sixty-five is suggested as a suitable age for superannuation for all future professors, and seventy for those at present in office.—*Medical Press.*

The Domestic Use of Saccharine.—A correspondent writing in the *Scientific American* of February 18, 1888, relates his experience in using saccharine as follows:

Sugar being a prohibited article to me, I naturally became interested in Fahlberg's "saccharine," and obtaining a supply as soon as possible, began experimenting with it. Using it alone to sweeten lemon juice or stewed cranberries, I found it very difficult to mix, and tried various dodges to remedy it, all of which had some drawback or other until I thought of dissolving it in glycerine.

I found that for general purposes the formula of glycerine one pound, saccharine one drachm, heated to solution, was the best. Two teaspoonfuls of above to the juice of one lemon made up to eight fluidounces make a lemonade sweet enough for almost any one, and three teaspoonfuls to four ounces of stewed cranberries make a dish "fit for a king."

I gave a sample of the above to a gentleman to whom sugar was tabooed, and who was then using saccharine alone, and asked him to try it with cranberries and report. When next seen he said very enthusiastically, "That's splendid. I've bought a barrel of cranberries, and would not go back to sugar if I could."

The advantages of the mixture over pure saccharine are: That the glycerine gives it a body, and the mixture very closely resembles in taste and appearance the best white honey; that it dissolves readily in water, milk, tea, and coffee, wines and liquors; and that it can be very readily measured.

The Ownership of Prescriptions.—The *American Druggist* discusses this question as follows:

So far as we know, the ownership of a physician's prescription has been brought before the courts, heretofore, only in a one-sided way, and has not been argued from the standpoint of special agreement or contract. It is usually supposed that when a patient calls upon a physician for advice, the advice constitutes the commodity which the physician has to sell for the time being, and that, if he writes a prescription and delivers it to the patient, receiving his fee, the commercial transaction is completed. In other words, it is supposed that the advice, including the prescription, are tantamount to a bona fide sale on the part of the physician, and to a bona fide purchase on the part of the patient, so that the latter may be regarded as the owner in fee simple of the prescription. But a sale or purchase may be regarded, or, rather, should be regarded, as a form of contract, entailing certain obligations upon both parties. When there are no conditions surrounding the exchange of the commodities, except the act of handing over the consideration, the transaction is absolutely completed and the contract fulfilled, as soon as the consideration is paid. But if the sale is made under certain conditions, accepted by the purchaser, the case assumes an entirely different aspect. We hold that if a physician expressly writes upon a prescription: "This prescription is intended for a special case and occasion and is not to be repeated"—or words

to this effect—and if the client accepts the prescription with this condition, then the latter is bound to abide by he condition. We believe, if a case of this kind were properly argued before the courts, it would be decided as we have outlined. But such a decision would hardly be of much practical value, because all that would be needed to evade the condition would be for the client to copy the prescription with omission of the prescriber's name and all details which might show that it was intended for a special case and occasion. Since any one may combine medicines in any manner, or shape, and several prescribers often happen to combine the same ingredients in the same proportions, it would be impossible for the original prescriber to identify—in a legal sense—his own prescription which he had given or sold to his patient conditionally.

Practically, therefore, even the acknowledged or assumed right of the physician to limit the use of any of his prescriptions to a particular case or time, could be easily circumvented, unless laws should be enacted which would clearly define the rights of prescriber and client.

Shakespeare's Medical Friend.—The *Medical Standard* for February, 1888, in reply to a question as to who this privileged person was, states that as the matter is of some general interest the epitaph on the tombstone in the Virginian church-yard may be cited: "Here lies the body of Edward Heldon, Practitioner in Physick and Chirurgery. Born in Bedfordshire, England, in the year of our Lord 1542. He was a friend and one of the pall-bearers of William Shakespere, of the Avon. After a brief illness his spirit ascended in the year of our Lord 1618, aged 76." It is sufficiently evident from this epitaph, and his daughter's marriage to Dr. Hall, that Shakespeare mingled in medical society.

A Simple Diagnostic Test for Ovarian and Ascitic Fluid.—Prof. Mayet advocates the use of sulphate of magnesium in order to distinguish between ascitic liquid and that from an ovarian cyst. If it be added in excess to the former, a precipitate is formed of paraglobulin and fibrinogen. In the latter no precipitate occurs.—*Medical Press.*

"Tempus Edax Rerum" for Hypochondriasis.—A case not less instructive than amusing is, the London correspondent of the *Irish Times* says, about to come to legal issue in London before long. Two years ago a London doctor had on his list of patients a lady long suffering from an affection of the face and jaw, which baffled the arts of the faculty. She changed her residence from London to a provincial town, but kept herself in the hands of her London doctor by letter. Finding the ailment obstinate, and the patient somewhat hypochondriacal, the doctor wrote in the end, saying he had exhausted his resources, and adding his opinion that *Tempus edax rerum* was the only remedy. Straightway the lady hied herself off to a local chemist, and applied for the specific as set forth in the letter. The attendant, it will be contended, through deliberate dishonesty, made up a bottle for which he charged 7s. 6d., and at the patient's request registered her name as a customer to whom the remedy was to be regularly supplied. She continued using and paying for the sham medicine for over a year and a half. Coming to London for the Jubilee, she chanced to meet her former doctor who was astonished to find himself gratefully thanked for his invaluable prescription. He wrote at once for an explanation, and the next stage of the business began with the disappearance of the assistant, and the denial of any responsibility of the chemist, but, nevertheless, the case stands for trial. The plaintiff has, it seems, been an invalid from her twentieth year, and has paid for medicine alone over £2000.

A Beautiful Clinical Case of Glanders.—The *Medical Press* reports that a curious case put the diagnostic ability of a well-known French therapeutist to the test on a recent occasion. The patient was a working saddler, who presented a number of small, superficial abscesses in different parts of his body, the secretions from which, under the microscope, showed the presence of the characteristic bacillus of glanders. After due consideration, the patient was pronounced to be suffering from farcy, and was exhibited at the Hospitals Medical Society of Paris, as such. Certain members having expressed a doubt as to the accuracy of the diagnosis, some experimental inoculations were made with matter taken from one of the sores, but without any result. Ultimately it was discovered that the man was a confirmed morphiomaniac, taking from six to eight hypodermatic injections daily. The abscesses were caused by a want of cleanliness, and by too superficial injections. What a magnificent case for the clinical examination of students!

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM FEBRUARY 14 TO FEBRUARY 27, 1888.

ARTHUR, WILLIAM H., *Captain and Assistant Surgeon.*—Leave of absence extended two months.—*S. O. 35 A. G. O.*, February 13, 1888.

VOLLUM, EDWARD P., *Lieutenant Colonel and Surgeon.*—Granted leave of absence for four months, with permission to go beyond sea and to apply for an extension of two months.—*S. O. 41, A. G. O.* February 20, 1888.

GARDNER, E. F. *Captain and Assistant Surgeon.*—Granted leave of absence for one month and twenty-one days.—*S. O. 41 A. G. O.*, February 20, 1888

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING FEBRUARY 25, 1888.

WILLIAMS L. L., *Passed Assistant Surgeon.*—Promoted and appointed Passed Assistant Surgeon from Feb 10 1888. Feb. 23, 1888

COBB, J. O., *Assistant Surgeon.*—Appointed an Assistant Surgeon, Feb. 21 1888 Assigned to duty at Marine Hospital, Chicago, Illinois, Feb. 25, 1888.

STONER J. B., *Assistant Surgeon.*—Appointed an Assistant Surgeon Feb 21, 1888. Assigned to duty at Marine Hospital New York City, Feb. 23, 1888

CONDICT, A. W., *Assistant Surgeon.*—Appointed an Assistant Surgeon Feb. 21 1888 Assigned to duty at Marine Hospital, Chicago, Illinois, Feb 23, 1888.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked. Letters whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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ORIGINAL ARTICLES.

A CASE OF SÄNGER'S CÆSAREAN SECTION.

BY L. E. NEALE, M.D.,

DEMONSTRATOR OF OBSTETRICS IN THE UNIVERSITY OF MARYLAND, JUNIOR OBSTETRICIAN TO THE FREE LYING-IN HOSPITAL.

H. J. C., colored; low stature; aged twenty years; Maryland; not married; no miscarriages; primipara; entered the Free Lying-in Hospital of the University of Maryland during the last month of her first and only pregnancy complicated by hydramnios.

Labor began December 11, 1887, at 4 A. M.; membranes ruptured at 8 A. M. before full dilatation of the os; Bandl's (retraction) ring appeared at 10 A. M. and steadily developed; Tarnier's forceps (Prof. Wm. T. Howard's modification) applied with difficulty at 1 P. M. to head movable above superior strait in R. O. I. P.

The operation lasted for one hour and three minutes without result, save bruising the child's scalp, and left both mother and child in apparently good condition.

The entire escape of liquor amnii, firm uterine contraction and retraction over the child, and the well-marked Bandl's ring dividing the uterus into two upper and lower segments would have rendered an attempt to perform version by any method exceedingly dangerous, and its execution, I believe, practically impossible. The cause of dystocia was a generally contracted, non-rachitic pelvis.

A consultation between Profs. Miltenberger, Tiffany, Michael, and myself, resulted in favor of Cæsarean section, and against craniotomy on the living child. The woman was willing to abide by our decision, and, accordingly the Sänger operation was performed at 6.15 P. M., Dec. 11, 1887. The operation lasted one hour and a half under gaslight; chloroform was the anæsthetic, and bichloride of mercury the antiseptic used.

Abdominal and uterine incision both in anterior median line. Placenta not in line of incision, but attached to the left, posteriorly. Child was readily extracted by feet, and with difficulty resuscitated. The uterus did not escape from the abdominal cavity until after removal of child, when it was small by contraction and retraction of its muscular walls.

After the first slight gush consequent upon opening the sinuses there was but little oozing from the uterine incision, which was entirely checked by placing an elastic ligature around the supravaginal cervix, which was not constricted prior to removal of the child.

The placenta was spontaneously expelled through the wound and the membranes gently removed by hand; the loss of blood during the entire operation being slight, indeed, not more than usually occurs in an ordinary case of natural labor.

Peritoneum dissected up and uterine wall resected along uterine incision; twenty-one deep silk sutures including serous and muscular coats, and twenty-nine superficial catgut seroso-serous Lembert sutures were used to close the uterine wound.

The uterine appendages were ligated and removed. Abdominal cavity washed out with warm water, elastic ligature removed from cervix, and the closure of the abdominal wound with a single layer of twenty-two deep silk sutures completed the operation. The intestines did not escape from the abdominal cavity, but during part of the time occupied in closing the uterine wound and removing the appendages the uterus did, and whenever thus exposed was constantly covered with warm, moist, antiseptic cloths.

The woman never rallied from the operation, and despite all stimulation died in forty-four hours of shock.

Post-mortem two hours after death revealed: intestines distended; slight deposits of fresh lymph here and there on intestines; a small cord-like band of omentum slightly adherent to right horn of uterus. Abdominal cavity dry, peritoneum for the most part normal, congested in places with slight lymph deposits. Uterine wound dark and sloughy. Not the slightest union of either uterine or abdominal incision. Heart and other organs perfectly normal.

Diagnosis.—Slight traumatic peritonitis; death from shock.

Diameters of pelvic brim[1]	antero-posterior	2¾ inches.
	transverse	4¾ "
	oblique	4¼ "
Diameters of fœtal head[2]	occipito-frontal	5½ "
	suboccipito-bregmatic	4¾ "
	occipito-mental	6 "
	fronto-mental	4 "
	biparietal	4¼ "
	bitemporal	3½ "
	bimastoid	3¾ "
Circumference[2]	occipito-frontal	14⅜ "
	suboccipito-bregmatic	13¼ "

Length . . 19½ inches. Weight . . 8 lbs. 14 oz.

The head was hard, thoroughly ossified, non-compressible, and as the above measurements and clinical

[1] These measurements were verified after death, when the abdomen was opened and the pelvic organs removed.

[2] These measurements were taken after birth, as I know of no means of measuring the fœtal head before delivery

history actually demonstrate, could not have been delivered, *per vias naturales*, by any conservative or non-destructive operation. The child's head and face were much contused by the forceps, a part of the left cheek subsequently sloughing out, and consequent pyæmia resulting, but he is now a fine thriving boy.

"Inasmuch as neither hemorrhage nor passage of lochia into the abdominal cavity occurred, the technique of the operation could not be blamed for the result."[1]

Owing to my limited experience with this operation, and the amount of recent literature upon the subject, it would be pedantic in me to say more about the technique.

I need only mention the fact that the best authorities are now adopting the anterior median incision for both abdomen and uterus, and that silk and catgut, I believe, are superseding silver wire as suture material. In my case it was impossible to fold in the peritoneum over the uterine incision without resecting the muscularis, and accordingly this was done. The sutures were probably as many as four to the inch, and although the authorities recommend close suturing, I am now of the opinion that the sutures in this case were unnecessarily numerous.

Yet, were I asked, what one avoidable cause contributed more to the woman's death than another, or rather, what part of the treatment I considered most open to criticism, I should frankly answer: in my opinion it was the unnecessarily prolonged and severe high forceps operation. My only excuse for this was my desire to avoid, if possible, the more serious operations of craniotomy on the living child, or Cæsarean section. And just here, I honestly believe, lies the common error in the treatment of this class of cases, viz., too much preliminary or conservative tampering.

THE MEDICAL NEWS of December 10, 1887, says editorially: "The fact is established, that, to be successful, Cæsarean section should take precedence of the forceps, turning, and craniotomy, trials of which only waste valuable time, and add to the risk of the knife." But in these cases of minor degrees of pelvic contraction, I believe it is often practically impossible to foretell, without an actual fair trial, whether the less dangerous conservative operations offer no chance of delivery through the natural passages. Such being the case, we would naturally resort to pelvic mensuration for a satisfactory solution of the difficulty. But unfortunately, in the present state of our knowledge on this subject, pelvimetry on the living subject especially when *in partu*, is not always sufficiently practicable, accurate, or reliable, to enable us to determine, by that alone, in cases of minor or slight contraction, between such momentous questions as the various comparatively mild conservative measures on the one hand, and craniotomy of the living child, or Cæsarean section on the other.

Cæteris paribus, I consider him a bold man, indeed, who would unhesitatingly cast the beam for life or death of the unborn human being merely by the addition or subtraction of a fourth or a third of an inch in pelvimetry. This is patent when we remember that there is only one diameter of the pelvic brim, the conjugata vera, that can be measured sometimes, not always, under certain favorable conditions, not under all, with any degree of positive or absolute accuracy.[1] But it is still more palpably true when we remember that we have no means of accurately measuring the head, or, indeed, any other part, of the unborn child, and this fact alone must necessarily invalidate, and that to a considerable extent, the practical importance of pelvimetry in the class of cases under consideration.

Neither is the resistance of the maternal soft parts, nor the compressibility of the fœtal skull, identically the same in all cases. And would it be far amiss to say that the ability of the operator, the condition of the patient, and her surroundings may often more or less determine the nature, and particularly the result of the operation?

It is true that Michaelis and Barnes have each delivered through a pelvis of one and one-half inches antero-posterior diameter, and Dr. Osborn, in the celebrated case of Elizabeth Sherwood, through a three-quarter inch pelvis with success to the mother, but by a *destructive operation* on the child, and is it not possible that a Sänger or other conservative operation might have extended success also to the child?

"Dr. Parry collected seventy cases of craniotomy in pelves measuring two and a half inches, and under. Of the seventy women, forty-three survived, and twenty-seven died, a maternal mortality of nearly forty per cent. The work was not done by tyros, but by celebrated obstetric surgeons."[2] If this occurred in pelves of two and a half inches, and under, with head presumably of normal size and resistance, is it not fair to suppose it might also have occurred in pelves of two and a half inches and a little over, say two and three-quarters (my case), with a head considerably above normal, both in point of size and resistance, as in the instance herein reported?

With reference to my own case, I consider it is a fair supposition when we bear in mind the important

[1] Abstract by E. H. G. from Sänger's Article, Amer. Journ. of Obst., vol. xix. p. 222.

[1] I state this under the practical conviction that in minor degrees of pelvic contraction, external pelvic mensuration is exceedingly inaccurate, and wholly unreliable, whilst internal pelvic mensuration is possible only under certain favorable conditions, and is even then rarely absolutely accurate.

[2] Lusk, ed. 1885, p. 490.

fact, that here the pelvis was contracted not alone in the antero-posterior diameter, but in all other diameters, and hence belonged to that more difficult and dangerous class of generally contracted pelves.

Lusk tells us that of five women with generally contracted pelves, in which the conjugate ranged from three to three and a quarter inches, and operated on by Naegèle, Heim, Spiegelberg, Lusk, and Kormann, all died as a consequence of delivery through the natural passages.[1] My case had a two and three-quarters inch conjugate.

Now let us turn from such results as these to the more pleasing picture of the modern or improved Cæsarean section.

The Medical News of December 10, 1887, states that "the first fifty Sänger-Cæsarean operations of continental Europe, which were completed in March, 1887, resulted in the saving of forty women out of fifty and forty-eight of their children!" With commendable boldness (for we need positive guides and rules to direct us in these matters) The News asserts the belief: "That the Sänger operation promptly conducted is less dangerous to the woman than craniotomy, where the true conjugate of the pelvis is reduced to two and a half inches!"

But, I ask again, Can we always measure a pelvis so accurately as to decide this vital question? Should we extend this limit if the pelvis be *generally* contracted or the head *above normal* either in point of size or ossification. Is such a rule affected by the life or death of the child, the surrounding conditions, the skill of the operator, etc.? These questions I leave for others to answer.

That in general, with minor degrees of pelvic contraction, the Sänger-Cæsarean section is a far more dangerous operation for the mother than craniotomy on the living child, I frankly admit; but I would ask, Is it fair or justifiable merely for this reason to disregard utterly the life of a viable and actually living human offspring by the performance of the latter operation when statistics prove there is a great possibility of saving both child and mother by the former procedure?

This I leave as an open question; but be it remembered, at the last International Medical Congress, 1887, it was the prevailing opinion among those who participated in the discussion on Cæsarean section, that the Sänger operation should hold precedence over craniotomy on the living child! Lusk emphatically declared that, "the Cæsarean section was easy to do and he did not want to encourage trying craniotomy and then Cæsarean section, but should make the latter the operation of election."[2]

In The Medical News of September 18, 1886, Dr. R. P. Harris published a table of all the Sänger operations that had been performed up to that time, with the result of saving 68 $\frac{8}{19}$ per cent. of women in all countries and 78 per cent. in Europe alone. The News of December 10, 1887, stated that "prior to 1887, the Sänger cases of the United States were all fatal, because operated upon *in extremis*: but during this year there have been, in all, three of this class of operations, two of them in hospital, saving all of the women and two of their children.[1] We hope to see the Cæsarean operation in the United States differently conducted in the future, and women subjected to the knife in good season, so as to save both child and mother." In a note from Dr. Harris, of Philadelphia, dated December 14, 1887, he states: "There have been 8 Cæsarean operations, 6 of them Sänger's, in the United States during the last nine months. All children alive, 2 soon died, 4 patients recovered. There have never been as many Cæsarean cases in the United States in one year before."

With regard to the case herein reported, I can frankly say, that it is only the result I regret, as I consider the operation to have been perfectly justifiable and plainly indicated, and in this opinion all the consultants fully agree.

319 W. Monument Street, Baltimore.

[1] Ed. 1885, p. 492.

[2] Med. Record, September 10, 1887, p. 355.

THE GALVANO-CAUTERY IN THE TREATMENT OF ENLARGED TONSILS.[2]

By FRANK HAMILTON POTTER, M.D.,
Lecturer on Laryngology, Medical Department, Niagara University, Buffalo, N. Y.

In a note to the last International Medical Congress, M. De Saint-Germain says: "He who invents a surgical operation receives great credit. Recognition, at least, should be given him who substitutes for two operations two simple procedures, less dangerous, quite as effective, and more easy to perform."[3] One of the procedures thus suggested was ignipuncture of the tonsils in the place of tonsillotomy. And while the advantage of this procedure is very evident, its claim to priority cannot be maintained. Some time before, Voltolini had advised cautery puncture of the tonsils, and Dr. S. Solis-Cohen had called attention to the same thing. Moreover, the paper of Dr. Charles H. Knight on the "Galvano-cautery in the Treatment of Hypertrophied Tonsils," read before the American Laryngological Association at its last meeting,[4] and the discussion thereon showed that the minds of many surgeons had been turned in this direction. The

[1] There have been several other successful cases in the United States, one in our own city subsequent to this writing, as yet, I believe, unpublished.

[2] Read before the Medical Society of the State of New York, Feb. 7, 1888.

[3] The N. Y. Medical Record, Sept. 10, 1887

[4] The N. Y. Medical Journal, Sept. 24, 1887.

writer himself had been working upon this subject, and the opinions of the various observers above referred to, served on the whole to confirm his views and encouraged him to persevere in his investigations. The purpose of this paper is to call attention again to the use of the galvano-cautery in the treatment of enlarged tonsils, and to present, in a general way, some suggestions founded on a year's experience with it.

The subject divides itself into two parts:

1. The method of procedure; and 2. A consideration of some of the objections that have been raised to the use of the galvano-cautery for the relief of this condition of the tonsils.

We can apply this method of treatment in two ways, either with the galvano-caustic snare, or with the sharp-pointed electrode. The latter is, in the writer's opinion, to be preferred, though for the sake of completeness a description of the former is given. In using the caustic snare the platinum wire must be adjusted closely to the tonsil, care being taken not to include as much of the organ as it is proper to remove. This is because the heated wire will cauterize that part of the organ that remains, causing it to contract to a considerable degree. Red heat is the best, and the wire must be tightened only during the passage of the current, which must be allowed to flow intermittently. In this way the wire plows slowly through the tonsil, little by little, removing a sufficiently large part of it, and leaving the stump well cauterized. The time required depends upon the size of the tonsil and the dexterity of the operator, but the current must be interrupted several times, as the best results are obtained when the operation is performed with deliberation. There is very little after-treatment, the wound healing readily under alkaline washes. It is important not to allow the wire when heated to come in contact with the pillars of the fauces or other parts, as these have more sensation than the tonsils, and if burned cause a good deal of pain. No. 30 platinum wire has been found to be the best, as, to borrow the words of Dr. Knight, it is readily heated, easily manipulated, and cuts the tissues with great facility. The advantage of the caustic snare over cautery puncture is due to the fact that it is more rapid, but, on the other hand, it is more painful and less easily managed, and we have, for these reasons, come to prefer the latter. Its application is simple. A sharp-pointed electrode, under red heat, is plunged deeply into the tonsil, say to the depth of three-eighths of an inch, held there for a moment and then withdrawn. Generally a second puncture can be made at the same sitting. Four to seven days must then be allowed to elapse, and the operation repeated. The average number of sittings required is five, but in exceptional cases with large tonsils this may be increased to eight or ten. This treatment causes but little pain, and none at all under preliminary applications of cocaine in the strength of four to eight per cent. The after-treatment consists simply in the use of alkaline gargles. The tonsil is finally contracted to its normal size and the symptoms dependent upon its enlargement entirely relieved.

It has been urged against this treatment that it cannot be used in all cases; that many people have an aversion to being burned; that it is impracticable in young children without general anæsthesia; and that, at the best, it is slow and tedious.

Now, we do not know any treatment of any disease that can be used in all cases; and we have found many people who have had a strong aversion to the use of any cutting instrument upon them. There may be, and are some conditions which will preclude the use of the galvano-cautery in the treatment of enlarged tonsils. One of these conditions may be an aversion to being burned. Certainly in this case we should not only not urge but advise against its employment. The noise of the burning tissues and the unpleasant odor produced are so disagreeable to some patients that they will not submit to this treatment. There is no other course open to us under these circumstances but to employ some other method. In regard to the necessity of using general anæsthesia with young children, we find this is often required in any procedure connected with the removal of their tonsils, and when this is necessary the operation should be completed at one sitting and that method employed which will accomplish this most readily. In most instances, however, we believe that kindness and patience will lead even young children to submit to cautery puncture, especially if they can be made to appreciate that you will cause them no pain in the application you desire to make.

The objection that this method is slow and tedious as compared with amygdalotomy is true, but before we decide in favor of the latter we ought to consider that the increase in the rapidity of the operation is attended with an increase of the danger. At any rate, it is pertinent to remark that an operation done well is done soon enough, and that that method should always be selected which increases the safety of the patient.

The danger of any cutting operation upon the tonsils, whether with the bistoury or with the amygdalotome, has to do with the hemorrhage. Opinions differ very much as to the degree of danger from hemorrhage after these operations. It may be said, however, though serious danger is not frequent, yet the liability to a fatal result from this cause is always present. Reports of cases of alarming and obstinate hemorrhage after tonsillotomy are not so rare as to encourage the belief that the operation is a simple one, and free from danger. Within our

own State, during the last year, such skilful operators as Dr. H. B. Sands[1] and Dr. Clinton Wagner[2] have reported such cases. So serious were these that it is conceivable that a slight variation in the circumstances attending them might have led to a fatal termination. Indeed, a fatal result is not so very uncommon. At the International Laryngological Congresses a number of deaths from this cause have been reported, and such men as Schnitzler, of Vienna, Schmidt, of Frankfort, and Michel, of Cologne, are on record as saying that they never under any circumstances cut an enlarged tonsil. And Dr. Harrison Allen[3] may be quoted as saying that he has given up for a long time the use of the bistoury and tonsillotome, on account of the bleeding attending them. He belongs to the class of timid operators in these cases, and thinks it would be very little consolation to a patient whose carotid required ligation to be told that this was a very rare accident. Elsberg, at the American Laryngological Association, in 1881, reported eleven thousand cases of tonsillotomy without a fatal result; but in two cases it was necessary to tie the carotid; in several the hemorrhage was so serious as to blanch not only the patient but also the cheeks of the operator, and in ten cases it was so vigorous as to require the most energetic treatment before it could be controlled.

Now, it seems to us that one fatal case would more than balance any number of successful cases, and while we do not wish to appear as an alarmist, we hold that any method tending to remove even the rare danger of fatal hemorrhage should be adopted. Such a method, we believe, has been found in the use of the galvano-cautery, as already indicated.

Some discussion has taken place as to whether cautery puncture is efficient in the case of a hyperplastic tonsil, it being admitted that in the condition of a simple hypertrophy this method has produced good results. The title, "enlarged tonsils," was purposely selected to indicate the writer's opinion on this subject. Wherever lately he has found the tonsils increased in size to a degree warranting an operation, he has employed the method of cautery puncture, and with uniformly good results. Of course, as the organs are not removed by this operation, it is impossible to tell just their pathological condition, but there is good reason to believe that whenever the tonsils are enlarged the application of the galvano-cautery as described will be sufficient for their reduction.

One more suggestion: the function of the tonsils is not yet determined. Whether they have a blood-forming function, or merely absorb from the saliva certain ingredients that would otherwise be wasted, or whether they are invested with both these functions, it is certainly conservative and wise not to destroy them entirely, but rather to preserve them so that, if even to a slight degree, their purpose in the economy may be performed.

The advantages of treating enlarged tonsils by the galvano-cautery, especially by the method known as cautery-puncture, may be formulated as follows:

1. It is safe.
2. It is easily managed.
3. It is painless.
4. Though slow it is sure, and preserves rather than destroys organs which it is rash to say are of no use whatever in the economy.

273 Franklin Street.

[1] The Medical News, May 28, 1887.
[2] New York Medical Journal, April 16, 1887.
[3] Trans. American Laryngological Assoc., 1881, p. 145.

APEX EXPANSION VERSUS PURE AIR IN PULMONARY CONSUMPTION.[1]

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Next to the tubercle bacillus, impure air stands most prominent among the many agencies which have been assigned as the causes of pulmonary consumption. Innumerable plans and methods have been devised and proposed for improving the ventilation of our dwellings, hospitals, and workshops; volumes upon volumes have been written on the ill effects of breathing vitiated air; and the immaculate freshness of the country and mountain air has come to be universally regarded as a certain guarantee against pulmonary consumption. These, like many other popular notions, contain a germ of truth, but actually are delusive, inasmuch as they exaggerate the effects of a small evil, and afford a false sense of security against the real source of danger in the production of this disease. This we shall endeavor to show in the following pages.

At the very outset we desire to be well understood that we do not in the least underrate the value of fresh, wholesome air in the prevention and treatment of pulmonary consumption, and while it is probably true that on the whole country people enjoy greater immunity from this disease than city people—though this is not proven on account of a lack of adequate statistics—yet we are convinced that the purity of the atmosphere plays a very small part in bringing about this probable result. If we are permitted to make a homely, hypothetical proposition, we will state that if two individuals who require the same quantity of air, and who are equally well off so far as heredity, food, clothing, warmth, comfort, etc., are concerned, were both enjoined to maintain a sedentary and a stooped position of their bodies for an unlimited period, one inside of a house and the other outside in the open air, we have no reason for

[1] Read before the Philadelphia County Medical Society, February 22, 1888.

believing that the one inside will fall a victim to this disease sooner than the one on the outside.

If it were true that this disease is the result of breathing a vitiated and impure atmosphere, how can we account for the fact that the inhabitants of Iceland, Greenland, Lapland, and of other cold countries of the north, who live in dwellings which are notoriously wanting in ventilation, are practically exempt from this disease? Of the Icelanders, Mr. Warnford Lock,[1] who is very familiar with these people and who speaks their language, says that their life is

"one long exposure to the elements, and during the night they live in dwellings devoid of ventilation, and which, if not buried beneath the earth, are built of turf and often become grass-grown, a very bad feature being the excessive stuffiness of the common living and sleeping room, where, owing to the absence of fires, the greatest possible crowding and plugging are necessary in order to maintain a tolerable degree of warmth."

And yet Dr. Cullimore,[2] from whose work the above quotation is taken, says (p. 73)

"that consumption in Iceland is never indigenous, but is always, when it does occur, imported from abroad and but seldom extends to the second native generation."

On the other hand, it may be stated that the people of the tropical regions of the globe who enjoy an uninterrupted revelling in pure, fresh air, both day and night, winter and summer, are by no means free from pulmonary consumption. The only difference, so far as the physical life of these two classes of people is concerned, is that the warm climate, which produces such a luxurious atmosphere, also creates a tendency to physiological sluggishness and an indisposition toward physical exertion among its inhabitants; while the people of the cold and rigorous north are compelled to maintain the warmth and vitality of their bodies in great part, by day, through physical exercise, of which their occupations of hunting, fishing, herding, etc., give them a full share. It is also well known that miners and laborers employed in coal mines, who continually respire an atmosphere which is not only loaded with impurities, but is damp and musty, suffér but very little from this disease.

One fact which lends color to the belief that pure air is such an essential element in limiting the ravages of consumption, is that those who occupy elevated or mountainous regions are less liable to this disease than those who live near the sea level. Thus Fuchs shows from extensive data that "at Marseilles, on the seaboard, the mortality from this disease is 25 per cent.; at Oldenburgh, eighty feet above the level of the sea, it is 30 per cent.; at Hamburg, forty-eight feet above the sea, it is 23 per cent.; while at Eschevege, four hundred and ninety-six feet above the sea level, it is only 12 per cent.; and at Brotterode, eighteen hundred feet above the sea, it is but 0.9 per cent."

Carrying this line of observation further, it appears very probable that consumption is almost unknown among any native people who live more than 6000 feet above the level of the sea.

Now that which concerns us here chiefly is the reason why mountain climates are, as a rule, so free from pulmonary consumption. Is it because the atmosphere is pure and free from septic germs? This is hardly possible, for if it were true that the aseptic condition of the air plays any prominent part, why should the Icelanders, who nightly reek in a most filthy atmosphere; or the dwellers along the Nile, who, according to Mr. B. Phillips, live "in huts where the pure air has neither ingress nor egress, except through a small hole near the ground;" or the coal miners, who continuously respire a foul and poisonous atmosphere, all be comparatively free from this disease? Is it due to the general absence of humidity? We think not, for Bogota, the capital of the United States of Colombia, located on the Andes, near the equator, at an elevation of over 9000 feet, is said to be entirely exempt from this disease, although dampness prevails to quite a large extent. We think there is much reason for believing that it is principally, if not entirely, on account of the attenuated condition of the atmosphere, and shall, therefore, at once proceed to consider the physiological influence of high altitudes on the human body.

It is estimated by Dr. Denison that at an elevation of 6000 feet the surface of the body is relieved of nearly 7000 pounds pressure. When such an enormous weight is lifted from the body it is quite evident that its interior must also be markedly affected—the pulse is accelerated from fifteen to twenty beats per minute; the respiration is quickened from ten to fifteen breaths per minute; evaporation from the skin and lungs is increased, and the amount of urine is diminished. These are some of the immediate effects. Protracted residence in such a high region enlarges the chest capacity. The Quichua Indians, who dwell on the elevated table lands of Peru, have enormous-sized chests, containing capacious lungs with large air cells. The Mexican Indians possess chests which are out of proportion to the sizes of the individuals. Dr. Denison says that children born in the Rocky Mountains have chests of unusually large capacity, and M. Jaccoud states that at St. Moritz the respirations are not only more frequent, but fuller.

The reason why the number of respirations increase while ascending a high elevation becomes

[1] The Home of the Eddas. S. Low, 1879.

[2] Consumption as a Contagious Disease. Ballière, Tindal & Cox, 1880.

clear when we take into consideration the fact that at the sea level a cubic foot of dry air contains about 130 grains of oxygen, while at an elevation of 6000 feet it only contains about 106 grains—nearly twenty-five per cent. less than the body is accustomed to breathe at or near the seaboard—therefore, in order to supply the wonted amount of oxygen to the body, the respirations must either increase in number or in extent. From all accounts it is very probable that respiration becomes accelerated only during the early period of exposure to such an attenuated atmosphere, and that subsequently this function becomes slow again because the air penetrates more deeply and completely into lung tissue but little utilized before.

That man does not suffer under such a deprivation of oxygen is evident from what we know to be true of his lung capacity under ordinary conditions of life. Prof. Mosso has recently proven experimentally that man possesses a lung capacity which is nearly one-fourth larger than the actual necessities of life at the sea level demand; hence by employing his whole lung capacity he can extract a sufficient amount of oxygen from this attenuated atmosphere without difficulty. And herein lies the secret why so many consumptives, and others with weak lungs, derive such a great benefit when they resort to a mountain climate. It may be trite, but it is nevertheless true, that all consumption practically begins at the lung apices, because these parts are habitually inactive. They are inactive because, in the first place, the bronchial tubes are so arranged that they conduct the air with greater facility to the base than to the apex of a lung, and, in the second place, because the lung is larger than necessary; hence the base, which is filled most readily, is filled first, and the apex, if at all, toward the end of inspiration. The apices, therefore, become the superfluous parts of the respiratory organs. It is quite different, however, when the body is immersed in a highly attenuated atmosphere. Every available space in the chest is now brought into requisition to furnish the needed amount of oxygen, the apices are called out of their lethargic state, and the alveoli are inflated, and if the infiltrated areas are not dispersed the surrounding alveoli are kept permeable, and so the disease is, at least, limited and called into abeyance.

This statement is corroborated by those who have had large experience in the climatic treatment of pulmonary consumption. Thus Ruedi reports[1] "that of 600 consumptives under his care at Davos, expansion of the thorax took place in no less than 584." Dr. Denison says[2] "the increased circumference of the chests of consumptives after undergoing the high-altitude treatment is shown in many of Prof. Weber's, as well as in my own, cases." Dr. Lindsay, in the work already quoted, states (p. 32) that

"Davos does not cure consumption by its sunshine, or the purity and dryness of its air (although these conditions undoubtedly coöperate in the beneficial effect), but mainly by the rarefaction of its air, which stimulates respiratory activity, promotes healthy expansion and soundness of tissue in the lungs, and hence aids them to resist the spread of morbid deposits."

So much, then, for the immunity which is afforded by mountain climates; but that which is of still greater interest to us is the fact that those who follow active employment are less liable to this disease than those who pursue sedentary and quiet occupations. Thus M. Lombard found

"in Paris, Geneva, Vienna, and Hamburg, that there are a greater number of persons leading a sedentary life afflicted with phthisis than of those leading an active life, in the proportion of 141 to 89. In the Brompton Hospital the relative liability was found to be 63 per cent. of indoor males to 30 per cent. of outdoor, and all the consumptive females followed indoor occupations. Dr. Guy found, in the close workshops of a printing establishment, the compositors, whose employment is sedentary, fell victims to phthisis in the proportion of 44 per cent. to 31½ per cent. of the pressmen, who, although breathing the same air and in every other respect subject to the same habits of life, differ only in the active bodily exercise which the press imposes on them; and among the same class of operatives the deaths from the same cause did not exceed 25 per cent. in those who use exercise in the open air." (Ancell.)

There can be no doubt, too, that those of our Indians who are still allowed to obey their roaming instincts of hunting and of fishing, or to follow their vocation of farming, which a number have, owe their immunity from this disease, which we know they possess, in great part, if not entirely, to the physical exercise which they obtain in this manner; while those who are subjected to the idle and improvident reservation life die rapidly from it, principally because they are deprived of their wonted exercise. This is of special interest to us here, because it has such a direct bearing on the main point at issue. Some of the former class of Indians, like the Pimas, for example, who may be called wild, although they are agricultural in their habits, are living in half underground huts with very little or no ventilation, yet, from all accounts, consumption is an exceedingly rare disease among them.

Thus far we have seen that, on the whole, those who occupy elevated habitations, as well as those who follow active exercise, are more exempt from the disease under consideration than those who live near the sea level or those who live a life of quietude.

[1] Climatic Treatment of Consumption. By Dr. J. A. Lindsay, p. 62.

[2] Rocky Mountain Health Resorts, p. 85.

In connection with this we will consider the influence of physical exercise on the lungs, and endeavor to ascertain how it affords protection against consumption. During physical exercise more oxygen is consumed by the muscles, and more blood and air circulate through the lungs than during rest. Just how much more air enters the lungs during activity than during rest can easily be estimated when it is known that during inactivity a man breathes 480 cubic inches of air per minute, and while walking at the rate of four miles per hour, or while tramping a treadmill, he breathes 2400 cubic inches, and if he walks at the rate of six miles an hour he takes in 3260 cubic inches of air per minute. The difference between 480 and 2400 cubic inches of air-capacity shows that during the exercise of walking even at the rate of four miles per hour, five times more lung surface is thrown into action than during rest; which proves very conclusively that bodily activity possesses a marked influence in determining the degree of lung expansion, and that under such conditions regions of lung will be called into service which are never fully reached by air during bodily rest.

This is in entire accord with what practically exists. Thus Darwin[1] says that the lungs in improved breeds of cattle, which naturally take little exercise and are domiciled much of the time, "are found to be considerably reduced in size when compared with those possessed by animals having perfect liberty," and Waldenburgh[2] states that the vital lung capacity is smallest in persons who lead sedentary lives, such as professional men, students, clerks, etc., and is greatest in those who follow active outdoor occupations, such as sailors, recruits, etc. Chassagne and Dally, in their joint work on the *Influence of Gymnastics on the Development of Man*, report that at the Military School of Gymnastics of Joinville-le-Pont, out of four hundred and one individuals subjected to gymnastic exercises for five months, three hundred and seven, or seventy-six per cent., showed an increase on an average of over an inch in the mammary circumference of the thorax. According to Dr. Abel, seventy-five per cent. of those who practise gymnastics in Germany experience an increase in the measurements of the chest. There can be no doubt that the principal reason why consumption increases with the advent of civilization is that everything in civilized life tends to produce physical inertia in our bodies. Walking is substituted by riding in carriages and in cars; manual labor is in great part replaced by machinery; active outdoor labor is supplemented by quiet indoor occupations—in fact, everything which tends to produce physical activity is exchanged for a life of ease and indolence. The American Indian, as has already been stated, is known to be comparatively free from the disease in his wild state, but as soon as he acquires the habits and customs of civilized life he becomes its victim.

In converging the two lines of reasoning which have been thus far developed in this paper, it appears that the immunity from consumption which is established by residing in a mountain climate, and by practising physical exercise, is chiefly brought about in the same manner, viz., by increasing the capacity of the chest. And from a practical point of view it is of some moment to know whether the former has more weight in bringing about such restoration than the latter—or, in other words, whether those who live in high altitudes continue to enjoy this exemption if they refrain from active physical exercise and take up a sedentary occupation in such regions. From recent inquiry into this subject, we are inclined to believe, at least so far as the Rocky Mountains climate is concerned, that as soon as outdoor pursuits are exchanged for sedentary indoor occupations, consumption increases in frequency. It is, therefore, quite certain that physiological exercise plays a more important part in the problem of the prevention and cure of consumption than a residence in an elevated or mountain climate, however valuable the latter may be. We have, moreover, good reason for believing that the immunity which is established through physical exercise is more permanent in character than that which is secured through residing in a mountain climate, for it is a common observation that consumptives flourish only in high altitudes so long as they remain; a protracted stay at the sea level is always regarded as perilous. Such consequences are in perfect harmony with what one would be led to apprehend from a knowledge of the physiological factors involved in the restoration of the patient. These factors are entirely local, and their influence does not extend very far beyond their immediate dominion. This objection does not hold good in regard to physical exercise. One thing may be said, however, in favor of mountain climates which is not true of physical exercise, viz., it produces its beneficial results without conscious effort on the part of the individual; therefore, when the remedy is viewed from a standpoint of ease and comfort, and not from one of permanence, the mountain climate is to be preferred.

In discussing the influence of mountain climate it must not be overlooked that, on account of its rarefaction, it increases the circulatory and cellular activity of the body, and in this way undoubtedly aids the process of nutrition; yet even this influence cannot be denied to physical exercise, although it is brought about in a more direct and positive manner.

While increased chest capacity is, therefore, the great desideratum in preventing and treating con-

[1] Animals and Plants, vol. ii. p. 361.

[2] Pneumatische Behandlung Respr. u. Circul. Krankheiten, p. 119.

sumption, we have the strongest evidence for believing that it is not so much a question of developing the base of the lungs as it is one of expanding the apices. This is well shown by the fact that the civilized female, although she has, on the whole, much less chest capacity than the male, yet, owing to her increased costal expansion, which has been cultivated through the protracted influence of tight lacing, she is less liable to pulmonary consumption than the male.[1]

Pulmonary gymnastics.—Such, then, are the comparative effects of mountain climate and of physical exercise in the treatment of pulmonary consumption, and it now remains to be shown how the effects of the latter can be obtained without resorting to those of the former. Reference has already been made to the fact that muscular effort increases respiratory motion, and in taking up the question of pulmonary gymnastics it is not our purpose to discuss those exercises only which have a direct influence on the chest capacity, but also those which, through the body, have an indirect influence on the pulmonary organs. In all exercises it is very important that none should be carried to the extent of decided fatigue; and that, whenever possible, the body and head should be kept erect, the shoulders thrown back and the lungs thoroughly filled with each breath; that breathing should only take place through the nose; and that sufficient food is taken during the intervals.

Bodily exercise.—The power of walking is common to most people, and its influence on the lungs, as we have seen, is very marked. It is regarded of great service even by those who exclusively advocate the utility of high altitude treatment. Dr. Brehmer, of Görbersdorf, according to Schreiber, was the first to prescribe for consumptives, walking up a gradual ascent. A semi-daily walk of half an hour or an hour, either on the level or on a slight upward grade, is of immense advantage to the invalid. Running, dancing, skipping rope (especially when the rope is swung backward), bowling, etc., are to be highly recommended. Whatever the mode of exercise may be, it must be performed under as little compulsion as possible. One reason why the above-named exercises are so conducive to health consists in the fact that the excitement which they induce is so attractive that the consciousness of muscular effort is lost.

Among the many indoor exercises the following movements are very valuable. The arms, being used as levers, are swung backward as far as possible on a level with the shoulders during each inspiration, and brought together in front on the same level during each expiration. Or the hands are brought together above the head while inspiring, and gradually brought down alongside the body while expiring. When a deep inspiration is taken in accordance with either plan and held until the arms are gradually moved forward or downward, or even longer, the process of chest expansion is materially enhanced.

Another very effective exercise is to take a deep inspiration, and during expiration only the patient, in a loud voice, will count as long as possible. A male person with a good chest capacity can count up to sixty or seventy, while in a female with ordinary lungs this power is somewhat reduced. Practice of this sort will gradually develop the chest, and the increased ability to count is a measure of the improvement going on within the thorax.

Many of these movements may have their effects greatly enhanced by the use of dumb-bells, chest weights, etc., which are made especially for the purpose.

Compressed and rarefied air.—The breathing of compressed and rarefied air is attracting wide attention at the present time in connection with pulmonary consumption, and is another most useful method whereby the chest capacity can be markedly improved. Nearly four years ago Dr. J. Solis-Cohen advocated the substitution of compressed and rarefied air for a change of climate, in a paper which he read before the American Climatological Association. Here he says:

"In many cases fully as much good can be secured by this treatment as by change of climate, and in a few much more; though, in the vast majority of cases in which change of climate is advisable, it is but a poor substitute."

There can be no doubt that compressed and rarefied air is inadequate when used alone in many cases, but when combined with pulmonary gymnastics and other judicious treatment, we are not sure that the results obtained are inferior to those which are derived from climatic treatment. Recent experience has shown us that when consumptives, who had spent one or two winters on the Rocky Mountains, or on the Pacific Slope, without benefit, were subjected to the use of compressed and rarefied air in association with other pulmonary exercises, such as are above described, their improvement became marked and decided. On the whole, our experience with the air treatment, combined with pulmonary gymnastics, has been very favorable, and we think that this is in consonance with the observations of others. Thus the late Prof. Flint, in his work on *Phthisis*, says (p. 406)

"it does not appear, from the analysis of my cases, that changes of climate have in a marked degree a beneficial influence, as compared with the hygienic measures available at home."

We believe, however, that, as a rule, these measures are applied too infrequently to be of the greatest

[1] Female Dress as a Determining Factor in Pulmonary Consumption. Thomas J. Mays, M.D.: Medical News, January 7, 1888.

service; and, therefore, insist that the pulmonary gymnastics be repeated every hour and a half during the day—the first thing in the morning and the last thing at night—and for from fifteen to twenty minutes at each time; and that the air inhalations be given at first twice, and in the course of two or three weeks gradually increased to four or five times a day, and even oftener. It is very true that this method of treatment involves more labor and perseverance on the part of the patient than is required in a high mountain climate; but then it is a question whether the patient is not more than compensated by the consciousness that a separation from friends is unnecessary, that the heavy expense, the dangers and discomforts incidental to travel are avoided, and, above all, that the improvement which may take place will be persistent and be practically unaffected by a change of residence.

Now, after reviewing the whole subject, we are driven to the conclusion that the line of immunity from consumption, which, in the early history of our country, was located at the Atlantic seaboard, and which has gradually receded westward with the tide of civilization, until at present it has reached the latitude of Colorado, will not stop in its course until it touches the shores of the Pacific; that the question of curing the disease does not depend on the purity or freshness of the air, or upon the number of bacilli which the atmosphere may contain, or upon the amount of oxygen which may be introduced into the body—for these are all secondary considerations; but it is simply a mechanical question, a question as to the best mode of expanding the lungs, and especially the apices of our round-shouldered and flat-chested patients, of removing the infiltrated products already existing, and of enhancing the constitutional resistance.

MEDICAL PROGRESS.

Sarcoma of the Tonsils Removed by External Incision; Recovery.—Richardson, Surgeon to the Massachusetts General Hospital, reports in the *Boston Medical and Surgical Journal* of February 23, 1888, the following interesting case: Mrs. E. H., aged sixty, came from New Brunswick to the Massachusetts General Hospital, April 9, 1886. She said that she had noticed a swelling back of the angle of the jaw on the left side for two years. It was of slow growth, except that it had seemed to increase rather more rapidly for a short time before coming to the hospital. Externally there was only slight deformity, a small swelling being visible under the left ear. Internally the left tonsil was pushed with the pharynx quite to or beyond the middle line. The appearance of the mucous membrane of the pharynx was normal. The growth was indurated and could be felt under the edge of the jaw from the mastoid process half-way to the chin.

April 13, 1887, the tumor was removed by an incision three inches in length along the anterior border of the sterno-mastoid muscle. A careful dissection was made to get under the parotid, behind which the new growth was found encapsulated. The tumor was lobulated, and had finger-like projections running in various directions. It partly surrounded the styloid process and was attached to it, and from there extended inward to the middle of the pharynx. It was covered in the throat by the mucous membrane alone. A large portion of the tumor was shelled out, and the rest removed by dissection. The portion projecting into the pharynx was thoroughly removed, leaving nothing but the mucous membrane of the pharynx between the fingers when one was in the pharynx and the other in the wound. The tumor was situated in the place of the left tonsil. It was impossible to say either from the location or the microscopic examination whether the growth started in the tonsil or directly adjacent to it. There was no tonsillar structure discovered by the microscopic examination, or at least none reported. In effect, however, it was a tumor occupying the tonsillar region and interfering with deglutition and respiration. The upward growth of the mass in and between the pterygoid plates, and its attachment to the base of the skull made its complete removal very difficult, and the probability of return very great. After the operation there was very little venous oozing from the deep parts, which was controlled by pressure. The wound was closed with silk and drained. Corrosive sublimate irrigation, and iodoform gauze dressings. During the evening the throat became swollen and ecchymosed on the left side, causing slight dyspnœa. The pressure on the outside was therefore removed. The next day the ecchymosis had extended to the frænum of the tongue and down on the neck. There was paralysis of the left lower lip.

Three days after operation she could eat and talk without trouble. Dressings changed to phenyl pad on account of slight suppuration along track of tube.

April 29th: Throat normal in appearance.

May 5th: Discharged.

November 23, 1887: A letter received from the husband states: "She got quite well in three weeks' time, and has not felt any effects of it since, and her health is good." Microscopic examination of the tumor made at the Harvard Medical School was to the effect that it was a round-celled sarcoma.

The Treatment of Cholera Infantum by Oxide of Zinc.—Dupré reports good results from the following formula:

Zinc oxide	grs. 53.
Sodii bicarbon.	grs. 23.
Tinct. rhatan.	gtts. 20.
Syrup. simpl.	℥ 7½.—M.

Sig. A small teaspoonful every half hour until vomiting and diarrhœa are relieved.—*Revue de Thérapeutique*, Feb. 15, 1888.

Leiter's Improved Cystoscope.—Fenwick, in the *British Medical Journal* of February 4, 1888, reports that he has used the new instrument successfully. He concludes that the cystoscope will become rapidly popular, and be largely employed in the diagnosis of urinary diseases, may be argued from the simplicity, safety, and success of the instrument; but it is indeed difficult to predict accurately its future rank. It will obviously replace the large

collection of instruments or procedures which attempt the diagnosis of the source of hæmaturia and pyuria; for the ureteral orifices are clearly exposed to view. Its use will tend to limit the size and number of vesical papillomata by enabling us to detect and remove these and other growths in their very infancy. It will, moreover, afford us a clearer insight into the physiological and pathological conditions of the vesical mucous membrane, and allow us to control our clinical observations and speculations by direct visual research.

Calomel Hypodermatically for Syphilis.—Neumann, of Vienna, uses successfully:

Calomel,	
Sodii chlorat.	āā 1 part.
Aquæ destill.	10 parts.

The average dose of calomel is 1½ grains; a quantity of the mercurial always remaining in the syringe.

Neumann treated thirty-six cases, in five of whom relapses occurred.

He considers it much inferior to the method by inunction.—*Deutsche medicinische Wochenschrift*, February 2, 1888.

The Treatment of Chronic Pharyngeal Catarrh.—Endler, has used the following gargle with advantage:

Zinci sulphat.	1 part.
Aquæ menth. piperit. . . .	200 parts.

In very sensitive patients a 2½ per cent. solution may be used.—*Berliner klinische Wochenschrift.*

Rectal Alimentation in Children.—Jacobi, in the *Archives of Pediatrics* for February, 1888, advises as follows: The rectum absorbs, but it does not digest. Whatever, therefore, is to enter the circulation through the lower end of the alimentary canal must be dissolved before being injected. Suspension alone does not usually suffice. Water can be introduced in quantities of from twenty-five to one hundred grammes (one to three ounces) every one, two, or three hours, and may thus save life by adding to the contents of the thirsty lymph-ducts and empty bloodvessels. Salts in a mild solution will thus be absorbed. Food must be more or less peptonized before being injected. The peptones mentioned above are readily absorbed when fairly diluted. When too thick they are not absorbed, become putrid, and a source of irritation. Milk ought to be peptonized. The white of eggs becomes absorbent through the addition of chloride of sodium. Kussmaul beats two or three eggs with water, keeps the mixture through twelve hours, and injects it with some starch decoction. The latter is partly changed into dextrin. Fat, when mixed with alcohol, becomes apt to be partly absorbed. Andrew H. Smith recommends the injection of blood. Its soluble albumen, salts and water are readily absorbed: more we ought not to expect. Still, he has observed that the evacuations of the next day contained none of the injected blood. Whatever we do, however, and be the rectum ever so tolerant, not more than one-fourth part of the food required for sustaining life can be obtained by rectal injections, and inanition will follow, though it be greatly delayed. Finally, children are not so favorably situated in regard to nutritious enemata as adults. In these the lengthening of the nozzle of the syringe by means of an elastic catheter permits of the introduction of a large quantity of liquid;[1] indeed, a pint can be injected, and will be retained. But the great normal length of the sigmoid flexure in the infant and child, which results in its being bent upon itself, prevents the introduction of an instrument to a considerable height. It will bend upon itself; besides, a large amount of contents will be expelled by the feeble or resisting young patient.[1] When a solid instrument is used, it is apt to be felt high up in the abdomen. This is the result of a large portion of the intestine being pushed upward with the tube.

Glycerin and Cocoa Cream.—The *American Druggist* recommends the following formula:

White wax	℥xiv.
Spermaceti	℥iij.
Cocoa butter	℥ix.
Castor oil	℥ix.
Oil of benne	℥vi.
Melt and mix; then add glycerin . .	℥ij.

Perfume to suit taste.

This makes a nice preparation. Petrolatum is used instead of the oil of benne (sesame oil) by some, and is considered an improvement. Either, however, will do.

A Safe Solution of Nitroglycerin for Medicinal Use.—The *American Druggist* has consulted the Chief of the U. S. Torpedo Station at Newport, regarding the solution of nitroglycerin which may be safely used by physicians; the conclusion is as follows:

It has been repeatedly stated that a 10 per cent. alcoholic solution of nitroglycerin is non-explosive, but, so far as the pharmaceutical public is concerned, this information was not known (or known to but few) to be absolutely reliable. Prof. Munroe expressly states that this statement is correct, such a solution being *absolutely non-explosive.*

Salol in Diarrhœa.—Eichberg reports in the *Cincinnati Lancet-Clinic* of February 25, 1888, his results in the use of salol, as follows: During the summer I had employed the drug in a number of cases in which diarrhœa was, at one time or another, a prominent symptom. As will be seen, this symptom depended on most diverse conditions, as tubercular ulceration, dysentery, enteritis, or the simple diarrhœa resulting from errors of diet. The report embraces fourteen cases, of which two were cases of dysentery, four of diarrhœa, one of loose bowels accompanying chronic gastritis, four of phthisis with diarrhœa, one of enteritis, one of tertiary syphilis, one of diarrhœa with subacute Bright's disease. An examination of the histories attached to this paper brings out clearly the fact that salol, while of some service in diarrhœa arising from almost any cause, cannot be relied upon with the same firm faith with which we administer the preparation of opium. It seems to act promptly enough, especially in the simple forms of bowel trouble; but the antiseptic effect seems to pass off with some rapidity, so that it often becomes necessary later on to resort to other remedies.

[1] The amount can be somewhat increased by raising the baby by its feet, while the chest and abdomen are supported by a soft pillow, and injecting quite slowly, or, rather, allowing the liquid to flow in from above downward. Gentle manipulation of the abdomen, while the procedure is going on will aid our purpose.

The weight of this experience, therefore, is rather against than for its use.

At the outset it was always administered alone, without other medicines, so that its effect might be thoroughly tested; and, while I should be willing to give it another trial, I should not express any confident hopes of success for its use. It may be that the quantities given were too small, the average dose being ten grains repeated every four hours (lately this medicine has been administered in maximal doses of from forty to sixty grains at one time), and the result might have been different but for this factor; further experience alone can answer this point.

As compared with naphthalin, the advantage rests entirely with the latter drug, which on account of its comparative insolubility and slow absorption, continues to act along the entire intestinal tract, while salol being decomposed high up in the intestine and absorbed at once, probably does not reach the lower part of the canal in sufficient quantity to be of any service.

Fracture of the Skull; Cerebral (Cortical) Abscess; Drainage; Recovery.—At a recent meeting of the Society of German Physicians of Prague, BAYER reported the case of a workman who sustained, from machinery, a multiple fracture with depression of the left parietal bone. On the supervention of aphasia, facial paralysis, incontinence, and other symptoms of cerebral pressure, Bayer enlarged the original scalp wound, removed bony fragments with hammer and chisel, and found pus oozing through the dura. A cavity as large as an orange was emptied, the wound douched antiseptically, and dressed. Recovery, with restored functions, resulted, the aphasia disappearing last.—*Medicinische-Chirurgische Rundschau*, February 1, 1888.

The Contents of a Surgical Bag for Antisepsis.—EGLI-SINCLAIR, in the *Correspondenz-Blatt für Schweizer Aerzte* of February 1, 1888, states that but a few articles should be carried in a surgeon's bag, and those essential to antisepsis are soap, nail brush, and a preparation of bichloride of mercury, for which he gives the following formula:

Hydrarg. chlor. corros.	ʒ 10.
Aquæ dest.	ʒ 50.
Ammon. chlorat.	ʒ 2.
A vegetable coloring mixture . .	gr. 1½.

The stopper of the bottle in which this is carried is so arranged that by inverting it it becomes a measure, its contents added to one quart of water making a $\frac{1}{10}$ per cent. solution of sublimate, markedly colored.

The Treatment of Melancholia.—DEFOE has used the following pill with advantage:

Zinc. valerian.,	
Quin. valerian.,	
Ferri valerian.	āā gr. 15.
Mucilag.	q. s.—M.

Ft. pil. 20 in number.

Sig. One pill before the two heavier meals of the day. —*L'Union Médicale*, February 7, 1888.

The Value of Albuminate of Iron.—DUMONT, reviewing the literature of the subject, concludes that albumen conduces to the absorption of iron, when combined with it.

When administered iron takes up albumen at the expense of the tissues of the body. Albuminate of iron, prepared outside the body, is more readily assimilated than other preparations, occasions less frequently stomach disorders, and produces a rapid increase in the iron compounds of the blood.—*Le Progrès Médical*, February 14, 1888.

Constitutional Effects from Nasal Sprays of Cocaine.—WHISTLER, of the London Throat Hospital, reports that after a long trial limited applications of strong solutions of cocaine in the nose as a local anæsthetic do not, unless very exceptionally, produce general symptoms. Spray solutions of a strength not exceeding even four per cent. are more liable to do so, and should not, as a rule, be applied in greater quantity than ten minims, especially if used by the patient as a topical remedy in acute nasal catarrh; and then this application should not be often repeated. With such restrictions all risk of harm would be avoided. It is easy to foresee, however, that an agent which can exert the primary stimulating effects, which it has been found to do, would appeal to some; and that the unrestrained habit of resorting to nasal sprays of cocaine by patients may lead to deleterious results.—*British Medical Journal*, February 4, 1888.

Peroxide of Hydrogen in Diphtheria.—HATFIELD, of Chicago, in the *Archives of Pediatrics* for February, 1888, reports his experience as follows: During the past few weeks eighteen cases of diphtheria of varying intensity from very grave to light have been treated with hydrogen peroxide, and have given eighteen gratifying recoveries. The number of these cases is yet too small to draw general conclusions, but they have proven to the writer that in hydrogen peroxide we have an agent that is exceedingly valuable as a local disinfectant, when efficiently applied, either by means of a swab or in the form of a spray (two ounces diluted with seven times its bulk of water). Diphtheritic throats treated thus every two hours did not become, even in the worst of the eighteen cases under observation, putrid and offensive, as they invariably do if left to their own devices. Hydrogen peroxide does not act as a solvent upon the diphtheritic membranes, but rather as its disinfectant and antidote, nor does it prevent the formation for, but neutralizes the poison of, the diphtheritic exudate, and thus anticipates many of the sequelæ of this dread disease. The remedy is certainly worthy of more extended trial in malignant diphtheria.

An Incompatible Prescription.—VIGIER, in calling attention to the incompatibility of alkaloids and tannin quotes the following mixture, which resulted in the precipitation of the cocaine:

R.—Cocaine hydrochlorat. . . .	gr. 4.
Syrup. aurant. flor. . . .	ʒ 12½.
Inf. of blackberry-leaves . .	ʒ 25.

In this instance the tannin in the blackberry leaves was the precipitating agent.—*Gazette Hebdomadaire*, January 27, 1888.

Antipyrin in Nocturnal Emissions.—In a recent number of the *Wiener medicinische Blätter*, Dr. Thör, of Bucharest,

gives some particulars as to the effect of antipyrin in cases of nocturnal emissions. Lupulin and camphor had been justly abandoned in such cases. Curschmann ("Functionelle Störungen der männlichen Genitalien," in *Ziemssen's Handbook*, 1878, p. 418) states that the sedative effect of lupulin on the genital organs, in spite of all the recommendations, was not proved. As to camphor, it has, according to his opinion, no better effect. Fürbringer (*Krankheiten der Harn- und Geschlechtsorgane*, 1884, p. 347) is of the same opinion. Zeissl (*Syphilis*, 1882, p. 112) recommends it in the first place, as do Purgsz (*Recept-Taschenbuch für venerische Krankheiten*, 1883, p. 21) and other writers. The effect of nux vomica, arsenic, and atropine is also often uncertain. Among all the remedies hitherto employed, bromide of potassium or bromide of sodium was the most useful. Diday (*La Pratique des Maladies vénériennes*, 1886, p. 538) recommends it to the exclusion of every other drug. Bromide of potassium, from 30 to 75 grains in a glass of water, taken just before going to bed, will, according to his experience, exert a prompt effect and check the pollutions. The prolonged use of the preparations of bromine, however, as is well known, produced an acne-like eruption, and the use of the remedy had, for this reason, often to be discontinued. Dr. Thör states that he has found antipyrin an excellent substitute for the bromides. He gives it in doses of from 7½ to 15 grains, to be taken by the patient a short time before going to bed. In seven cases it had proved very successful, and checked the pollutions. No disagreeable after-effects were observed. In "neuroasthenia sexualis" in the sense of Beard (*Die sexuelle Neuroasthenie*, 1885) antipyrin could also be used with good results; but the dose had in these cases to be sometimes increased from 15 to 30 grains a day.—*British Med. Journal*, February 18, 1888.

A Case of Recovery from Subacute Phithisis.—Auld, in the *Lancet* of February 11, 1888, reports the following interesting case:

The subject of this communication, a woman, aged twenty-three, first came under my observation in the latter part of 1884. Her family history was bad: her mother and a brother had succumbed to lung disease; a sister was lying ill of phthisis, of which she shortly died; and she herself was weak, anæmic, and very dyspeptic.

Notwithstanding these hindrances, she managed, with the aid of arsenic and iron, to fulfil her arduous duties as a teacher, with but slight intermissions, until August, 1886, when increasing weakness, anorexia, and scrofulous inflammation of the right cervical glands laid her aside. An examination of the lungs at this time revealed nothing very definite. In due time a large quantity of characteristic pus was twice abstracted from the neck. Shortly afterward, about Christmas, an intense inflammation attacked the great joint of the thumb of the right hand, leading to sinuses, discharging evidently tubercular pus. After two months this discharge with its attendant phenomena began to disappear, while simultaneously were developed the signs and symptoms of phthisis pulmonalis.

The disease at first threatened a somewhat severe course. The left lung became extensively involved; temperature ranged from 102° to 104°; cough and expectoration considerable; night sweats profuse; circulation very weak; appetite gone. "Those are the gloomiest cases of phthisis," says Dr. Sutton, "where there are anæmia and weakness of the pulse." In the middle of May, Bergeon's treatment, then attracting attention, was contemplated, but the patient was considered too weak, and the idea was abandoned. About this time, however, the stomach, which hitherto had resisted all treatment, began to show signs of improvement, and as much suitable food as could be borne was administered. Occasional attacks of sickness were best relieved by a few drops of solution of cocaine, with ice, and the bowels were kept well open. No antiseptics were employed, as I have been invariably disappointed in their use. This improvement steadily increased, accompanied by a very pronounced amelioration of the general symptoms and a very remarkable gain of flesh, till by the middle of July the pyrexia and night sweats had almost entirely ceased. The expectoration nevertheless continued, and there were the physical signs of a vomica in the left apex, whilst in the right moist râles were audible. Considering the case unusual, I communicated with Prof. Hamilton, of Aberdeen, in the month of August, who kindly examined the sputum, and reported that, after a very careful examination, he found that "it contains the tubercle bacillus in considerable abundance." From this period onward the patient was rapidly recovering, and by the end of September the cough and expectoration had nearly ceased, the moist sounds had almost vanished, and vesicular breathing was partially restored over the damaged areas. Early in October menstruation took place for the first time in several years, the discharge being normal as to duration and amount. By the beginning of November the cough had entirely disappeared, no moist râles were audible, menstruation had reappeared, and hitherto this favorable condition is maintained.

Naphthalin in the Intestinal Affections of Children.—Widomitz is quoted by the *Medicinische-Chirurgische Rundschau*, Heft 1, 1888, in reporting the best possible results from the use of naphthalin in children. With the exception of dyspepsia, with vomiting of curded milk, he found it useful in all intestinal affections in the following mixture:

R.—Napthalin. pur.	. . .	gr. 5 to 15.
Muc. gumm. arab.,		
Aquæ chamom.	. . .	āā ℥ 10.
Ol. menth. piper.	. . .	gtt. 1.—M.

Sig. To be well shaken. Small teaspoonful every two hours.

Alcoholics may be added when the condition of the patient demands them.

Intestinal Obstruction, with Extra-peritoneal Rupture of the Colon.—At a recent meeting of the Clinical Society of London, Bennett reported the following case:

The patient was a gentleman advanced in age, who for many years had been habitually constipated. At frequent intervals he was in the habit of using violent purges, without which the bowels never acted. About the middle of September, 1887, the constipation became more obstinate, and attacks of colic, from which the patient had also often suffered for years, were frequent and most severe. He was able, however, to obtain sufficient relief by means of his usual medicines up to October 17th, when a very small hard motion was the

only result of his treatment; the colic, which was very acute, did not completely subside. Gradually the abdomen became distended, and great discomfort ensued in consequence. Further purges were taken without any good effect, although there was a frequent urgent desire to defecate. On the 21st, whilst stooping over a letter, he felt a sudden acute pain passing down into the left loin. Some nausea and faintness followed, from which he soon rallied. He was seen by Mr. Bennett on the 22d. His face was pinched and anxious in aspect. The tongue was brown and dry. The pulse very weak. The belly was much distended, especially on the left side, where the loin bulged very prominently. The rectum was empty, but a hard mass could be felt through its walls, situated in the bowel higher up. The distress from the distention was extreme, and the patient begged, for an operation. As the case was clearly one of obstruction above the sigmoid flexure, a left lumbar colotomy was performed. On opening the abdominal cavity there rushed out before any gut was exposed a large quantity of gas and some liquid feces. On introducing the finger the intestine could be felt in front of a space from which the gas, etc., had come; manipulation of the colon, which could be easily made out, caused the air which remained in it to come through an opening in the gut at the lower part of the space mentioned, just below which could be felt a hard mass in the bowel. The distention at once subsided, but the patient became collapsed and did not rally. The case was regarded as a clear instance of rupture of the colon outside the peritoneum, which explained the mildness of the symptoms following immediately upon the giving way of the gut, which it was assumed took place when the acute pain, mentioned in the account of the case, suddenly seized the patient. In the same way the one-sided character of the abdominal distention and the absence of peritonitis could be accounted for, and a curious corroboration afforded to a statement of the patient, to the effect that attempts at defecation only increased his distress, for it is easy to see how such attempts could force the contents of the colon more and more into the surrounding cellular tissue. The case was considered remarkable for its rarity, and on that account had been thought worthy of record.—*Medical Press*, February 15, 1888.

A Mixture to Replace Milk in Infant Feeding.—TEDESCHI used the following formula in 51 cases of cholera infantum, reporting 44 recoveries, 3 deaths, and the other patients unreported:

White of egg (dried)	ʒ 3¾.
Oil of sweet almonds	ʒ 8¾.
Sugar of milk	ʒ 10.
Carbonate of sodium	grs. 6.
Chloride of sodium	grs. 3.
Neutral phosphate of calcium	grs. 40.
Water	quart 1.

Of which an emulsion should be made.—*Revue de Thérapeutique*, February 15, 1888.

Antipyrin in Whooping-cough.—GRIFFITH, in the *Therapeutic Gazette* of February 15, 1888, reports fifteen cases of whooping-cough treated by antipyrin after Sonnenberger's method, which he describes as follows, his own results coinciding fully with those of Sonnenberger:

This author had under observation since 1884 two large epidemics of the disease at Worms; and becoming greatly dissatisfied with the usual methods of treatment, determined to experiment with antipyrin. As a check upon his results he treated some members of a family with this drug, and to others taken sick at the same time he gave quinine or chloral, or the bromides, or some other well-recognized plan of treatment. In other instances he administered antipyrin for a few days, then allowed an interval to pass in which no medicine was given, and finally returned to antipyrin. In a short time it became clear to him that this drug exceeded in value all others which he had yet employed for the malady in question; and he has continued to use it up to the present time—a period of two and a half to three years. He treated about seventy cases of the disease with antipyrin alone; giving it in doses of ½ of a grain in quite young children, up to 7 to 15 grains, for larger children or adults, three times a day; though he believes much larger amounts might be given.

A most important fact is that the best results were obtained when the course of treatment was commenced at the beginning of the disease. Under these circumstances the affection lasted in all but three to five weeks, and was of a mild character, with not more than six or seven slight paroxysms in the twenty-four hours. When it is remembered that an average case has, according to Eichhorst, twenty to thirty paroxysms in a day, while in a severe case the number may even reach one hundred, it will be recognized what an improvement this is. But even when the treatment was instituted at the acme, and with the most unfavorable hygienic surroundings, good results were obtained. The paroxysms often became less violent after the first dose, and after several days occurred less frequently. When the drug was stopped the symptoms grew worse, showing that the effect was actually due to its use. In only five cases did he observe complications, and there was no instance of antipyrin-collapse. It would seem, then, pure cavil to deny that in antipyrin we have a drug capable of influencing whooping-cough most powerfully, especially in the first and second stages, where other means so often fail.

Antipyrin may be given in

R.—Antipyrin.	ʒ 6.
Aquæ	ʒ 2.
Syrup. simpl.	ʒ ½.
Tinct. anisi	ad ʒ 3.—M.

Sig.—Fifteen grains to the teaspoonful.

For children:

R.—Antipyrin.	gr. 2½ to 8.
Syrup. aurant. flor.	ʒ 13½.
Aquæ	ʒ 25.

may be prescribed.

By rectal injection:

R.—Antipyrin.	gr. 30.
The yolk of one egg,	
Warm water	quart 1.

In suppositories:

R.—Antipyrin.	gr. 8.
Ol. theobrom.	gr. 60.
Cocain. hydrochlorat.	gr. 1½.

—*Revue Gén. de Clin. et de Thér.*, February 16, 1888.

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ERYTHROPHLÆINUM OR HAYA.

UNDER this rather cumbersome name, a new local anæsthetic has been brought very lately before the profession by the Germans.

In the *Deutsche med. Wochenschrift* of January 19, 1888, is a note on its action by LEWIN, read before the Berliner medicinische Gesellschaft, in which he records the results obtained by dropping a solution of the drug in the eyes of cats, dogs, and rabbits. He found that anæsthesia came on in from fifteen to twenty minutes, and lasted as long as twenty-four hours. When given hypodermatically to the frog, the heart-beats became more rapid, but later were slowed, while, in the warm-blooded animal, weakness asserted itself, the head was drooped, and the creature soon lay down, relaxed and powerless.

The drug is derived from an African plant, the *Erythrophlæum judiciale*. Lewin used it in the form of a two-tenths of a one per cent. solution of the active principle, erythrophlæin.

In the *Wiener med. Presse* of February 5, 1888, NEVINNY records his experiences, many of the results of Lewin being confirmed by his work. In addition we have the researches of EGASSE, in *Nouveaux Remèdes* of February 8, 1888, in which the period of anæsthesia is stated to last from eight to ten hours.

When Egasse gave the drug hypodermatically to the frog, symptoms other than those already mentioned came on. Convulsions, preceded by persistent dyspnœa, and followed by paralysis, occurred, while loss of reflex activity, and finally of sensibility, were noted. Pigeons were also convulsed by it. Trials made by LIEBREICH and GOLDSCHMIDT, the results of which have been more recently published in the *Deutsche medicinische Wochenschrift* of February 16th, and the *Centralblatt für klinische Medicin* of February 18, 1888, are virtually identical with those of earlier investigators.

The drug in solution forms a dark, opalescent liquid, of an alkaline reaction and yellow color.

THE TENEMENT-HOUSE PROBLEM.

THE provision of comfortable and healthy homes for the poor of large communities is a problem of no easy solution. As shown by the last census, there is a steady movement of population from the country to the populated centres, and consequently the proportion of the inhabitants who live in the cities is steadily increasing. The urban population is also constantly increased by the arrival of immigrants, many of whom are without any occupation whatsoever. Those willing to work find greater inducements in the country districts, while the improvident and incapable are attracted by the wealth of the cities. This rapid increase of population has had a prejudicial effect upon the dwellings of the poor. The demand for accommodations has increased the value of house property, with the immediate effect of compact building, and overcrowding and its attendant evils. Under these conditions the tenement-house system has become established in most of our cities to meet a necessity which has arisen, and which, to a great extent, has been met before the authorities were prepared to regulate the construction and management of the buildings, and, consequently, tenement-houses have been erected with a reckless disregard of sanitary needs.

The evil has been of rapid growth, but it has not escaped the attention of philanthropists and legislators. The question of providing accommodations for the working classes in large cities has long been a matter of national importance in England, and many acts have been passed, such as the Towns Improvement Clauses Act of 1847, the Metropolitan Buildings Act of 1855, the Sanitary Act of 1866, and the Artisans' and Laborers' Dwelling Act of 1868, which regulate the construction of houses, the manner of occupancy, and provide for the sanitary supervision of the lodgings of the masses. This legislation has no parallel on this side of the Atlantic, because of the comparatively recent growth of the evil, and our limited experience and less extensive

opportunities for studying the tendencies of the housing movement, and developing plans for correcting its bad features. Progress, however, is being made in this direction.

A good idea of the position which the housing movement has attained in our great cities may be obtained by consulting the *Report of the Proceedings of the Fourth Annual Session of the National Convention of the Bureaus of Statistics of Labor in the United States*, held in Trenton, in June of last year.

As might be expected, the tenement-house system has shown its greatest development in New York City. There land is high, and the poor population large—two factors which lead to overcrowding. In order to relieve this condition, the Tenement-house Act of 1867 and subsequent amendments were passed. The earnest efforts of philanthropic citizens and the praiseworthy endeavors of the New York Improved Dwellings Association have done much to further the project for providing better accommodations for the poor. The marked progress in measures of reform noticed in that city within the past few years is largely due to these influences.

In Chicago the same progress does not appear to have been made. The rapid influx of aliens of every nationality and grade of society has overtaxed the supply of proper accommodations. Owing to this deficiency, the mixed population who inhabit the lower quarters are crowded into the rookeries without regard to health or decency.

In Philadelphia the evil of overcrowding has, in a great measure, been prevented by the provision of small houses for the working people. Tenement-houses are few in number, and are inhabited mostly by the idle and improvident. The great popularity and success of building associations and the cheapness of land have made individual houses available, and for these there is a decided preference. Individual enterprise, encouraged by this success, has also assisted in the movement.

The time is opportune for systematic investigation of the condition of the working people, with special reference to their house accommodations. Much useful information on this subject has already been collected by the bureaus of statistics of labor which have been appointed in a number of States. The societies for organizing charity, now widely established, are closely identified with this humanitarian work, and are capable of exerting a powerful influence in elevating this class of society by improving its surroundings. Practical results are to be derived from an extension of the plan of building associations, which has been so successful.

As the provision of improved dwellings for the working people, by conducing to morality, health, and thrift, is important, aside from its philanthropic objects, as a matter of civic policy and economy, the State has an obligation from which it cannot honorably escape. The State cannot build houses for the poor, but it can regulate their construction and management. Strenuous efforts should, therefore, be made to secure the legislation needed to regulate the construction and government, specially with regard to light, ventilation, number of occupants, size of open spaces, etc., of buildings for the accommodation of this particular class of the community.

DEATH OF PROFESSOR WAGNER.

Our exchanges announce the death of Ernst Wagner, Professor of Medicine in Leipzic, one of the best known and most esteemed of German physicians. He was born in 1829, and received his medical education in Leipzic and in Vienna under Oppolzer. He early became Wunderlich's assistant at Leipzic, Docent in Pathology, and in 1863 Professor of this branch. From 1868 he held the ambulatory clinic, and succeeded to the Chair of Medicine on the death of Wunderlich. His *Manual of General Pathology*, which was translated a few years ago, made his name very familiar to English students. From 1860 he edited the *Archiv der Heilkunde*, in which he published a long series of valuable pathological and clinical papers. Since its suspension his contributions have enriched the *Deutsches Archiv f. klin. Medicin*, and a few weeks ago we presented our readers with a notice of his paper on "Idiopathic Œdema."

Wagner was a model clinician, and as a teacher of medicine he had scarcely an equal in Europe. Devoted to the study of morbid anatomy, and passing daily, as a matter of routine, from the wards to the post-mortem room, he had acquired in the course of a long and varied experience remarkable skill in the diagnosis of disease. He was essentially a practical physician, a wise therapeutist with an enthusiasm judiciously tempered by an unusually accurate knowledge of the action of drugs in the different phases of disease. He was a good example of the type of man which has made German medicine famous. "Ohne Hast aber ohne Rast," day by day, in the ward, the laboratory, and the class-

room, the work was done with a painstaking care, which increasing years did not diminish. His death at a comparatively early age is a serious loss to the profession and a grievous one to the University of Leipzic.

Ever since the first appearance of epidemic cerebro-spinal meningitis in Philadelphia, in 1863, there have been sporadic cases reported, and, if we can rely upon the city mortality returns, not a year has passed without the occurrence of thirty to eighty deaths from this cause: while in the years 1864, 1865, 1867, and 1872–1873, the cases increased to epidemic proportions. Making every allowance for errors in diagnosis, the persistence of the disease seems well established, and as Dr. Stillé remarks, in his exhaustive article in the *System of Medicine* by American writers, "it would appear that the disease continues to linger in this locality longer than has been reported of any other place of which information has been obtained." Within the past few months there has been an increase in the number of cases, and deaths from the disease have occurred in Germantown, Chestnut Hill, and the Falls of Schuylkill. At a meeting of the Neurological Society last week, Dr. Mills referred to a number of cases which he had seen.

It is extremely desirable that an accurate record be kept of the cases as they occur, and of the local conditions under which the disease develops, as the careful study of small, limited epidemics may throw light on some of the obscure problems relating to the etiology of this most serious malady.

The preliminary programme of the First Congress of American Physicians and Surgeons has just been issued. The Congress will be held in Washington on the evenings of September 18th, 19th, and 20th of this year.

On the first evening a discussion on "Intestinal Obstruction in its Medical and Surgical Relations," will be opened by Dr. Reginald H. Fitz, of Boston, and Dr. Nicholas Senn, of Milwaukee.

On September 19th, a discussion on "Cerebral Localization in its Practical Relations," will be opened by Dr. Charles K. Mills, of Philadelphia, and Dr. Roswell Park, of Buffalo.

On September 20th, the President, Dr. John S. Billings, will deliver an address, which will be followed by a general reception in the United States Army Medical Museum Building.

The special societies forming the Congress will hold their separate meetings during the mornings and afternoons of the above days. The Association of American Physicians has issued a preliminary programme for its meeting, which will be found in another column.

The Seventeenth Congress of the German Surgical Society will be held in Berlin, from the 4th to the 7th of April, 1888.

The meeting will be preceded by a Memorial Celebration in honor of the deceased President von Langenbeck, held on the evening of April 3d, in the hall of the Philharmonic Society. Mozart's Requiem will be rendered, and a Memorial Address will be delivered by von Bergmann.

The Third Congress of French Surgeons will convene in Paris, March 12–17, 1888, under the Presidency of Verneuil.

The Obstetrical and Gynecological Society of Vienna has been recently organized under the presidency of Professor Breisky.

The medical friends of Dr. D. Hayes Agnew will celebrate the fiftieth anniversary of his entrance into the profession by entertaining him at dinner on April 6th. Later in the month the medical students of the University of Pennsylvania will give a reception at the College in commemoration of his Jubilee.

The Alumni of Bellevue Hospital Medical College have erected a tablet in the Carnegie Laboratory to the memory of the late Austin Flint, M.D., which will be formally unveiled this evening, and Dr. Leroy M. Yale will make the presentation address.

Dr. Allis will deliver the Mütter course of lectures on the "Surgical Pathology of the Articulations," on Tuesday and Friday evenings, at eight o'clock, beginning March 6th and ending April 6th, at the Hall of the College of Physicians of Philadelphia. The course is open to the Fellows of the College and the medical profession.

At the recently held Commencements the degree of M.D. was conferred on graduates in medicine as follows:

University of the City of New York, 163; Rush Medical College, Chicago, 132; University of Buffalo, 44; Meharry Medical College, Nashville, 18.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, March 1, 1888.

THE PRESIDENT, A. JACOBI, M.D., IN THE CHAIR.

DR. EDWARD B. BRONSON read a paper on the question

SHOULD WE TREAT SYPHILIS DURING THE PRIMARY STAGE?

The poison of syphilis, he said, having once been effectually inoculated, are there any means at our command by which we may hope to prevent the impending constitutional effects? By preventive treatment is not necessarily meant abortive treatment; but it embraces all measures tending in any degree to abridge or mitigate the subsequent course of infection, and its effects on the constitution. The utility of any such measures will depend, first, on what the nature or essential quality of syphilitic infection is; and second, on the special status of this infection during the primary stage of the disease.

But of syphilitic infection we have no positive knowledge, either as to what constitutes its essential element, or what is its mode of progress; so that until more light is shed upon this unsolved problem we must make the most of what there is. The question in the form in which it immediately presents itself, may be stated as follows: Are the indications thus far afforded by our imperfect knowledge of syphilitic infection such as to render any attempt at preventive treatment in the primary stage of the disease unavailing and absolutely hopeless, as is maintained by many?

There are two modes of approaching this question: one theoretical, and the other empirical. In considering the indications furnished by the pathological conditions in syphilis, the first inquiry is naturally directed to the essential cause of the disease. Here all is as yet hypothetical, and the most that we can do is to accept provisionally that view by which most is explained. No theory explains the observed phenomena of syphilitic infection so satisfactorily as that which attributes them to the presence and growth in the tissues of certain specific microörganisms. Thus far the microbe of syphilis has not been positively determined; but even were it fully established that syphilis is a parasitic disease, due to known forms of microörganisms which could be cultivated outside of the body, it is by no means certain that the answer to the question of the utility of preventive treatment would be affirmative. Judging from experience in such diseases as tuberculosis and contagious anthrax, in which the specific germ has been identified, the success of antiseptic treatment is far from assured.

But the conditions in syphilitic infection are peculiar. Not only does the inoculation usually take place at a single point where it is freely accessible to manipulative procedures, but there are indications in the slow and gradual progress of the disease that general infection does not take place immediately, but that there is a temporary sojourn of the virus in the region where first implanted. After the virus has been inoculated there ensues a period of apparent quiescence of several weeks' duration, when, little by little, there begins the formation at the inoculated point of a neoplastic, indurated growth, which essentially consists of inflammatory granulation tissue, answering in its general characters to an irritative lesion provoked by the presence of a foreign and disturbing element. Simultaneously with this "initial lesion" of syphilis, or shortly following its first appearance, the nearest lymphatic glands become swollen and indurated in consequence of a cellular growth of a corresponding character to that of the "initial lesion." These local manifestations remain for a considerable period the sole evidences of disease; till finally, at the expiration of this period, with more or less sudden onset, the symptoms of general or constitutional syphilis make their appearance. The most satisfactory explanation of this course of events is that when first implanted in the tissues the virus does not immediately pass into the general circulation, or what portion does is insignificant; that, mainly at least, it is at first confined to the spot where the future chancre is to develop; that here finding a favorable soil it grows and slowly increases till its intrusive presence becomes a source of offence to the tissue harboring it, and gradually inflammatory reaction results. From this source of generation the virus contaminates sooner or later the nearest lymphatic glands, which in turn become other sources of supply, until, finally, from these multiple foci the whole organism becomes infected. According to this view the main route to the general circulation is by way of the lymphatics, and through the *receptaculum chyli*.

To this Auspitz has objected, that within the initial lesion the lymphatics show comparatively little change, while the bloodvessels are commonly implicated, and often occluded; and that between the chancre and the *receptaculum chyli* the chain of indurated glands has not yet been shown to be continuous and complete. But that the lymphatics in the primary induration are but slightly affected may, perhaps, be the very reason why their absorbent function is not disturbed. The objection that the lymphatic chain is not continuous seems to be based mainly upon the pathological specimens in the *Musée de Lourcine*, described by Fournier, which were taken from cases in which it is not stated how long the disease had lasted when the patients died.

Thus far the pathological conditions seem to imply that the disease advances by way of the lymphatics in a manner analogous to the diffusion of the malignant tumors. Whether, however, in syphilis the contamination advances by such regular approaches from one gland to another that any definite interval can be said to exist between the infection of one gland and that of the next in succession is very doubtful. In the indications presented up to this point we find nothing incompatible with the position that during the primary period of syphilis the disease is localized within the vicinity of the point of inoculation; but the view is current among many syphilographers that the manifestations of this period are always anticipated by infection of the general system. According to this position, directly upon its inoculation, the syphilitic virus passes into the general circulation, and the incubation pertains not to any *materies morbi* in the vicinity of the point of inoculation, but to something in the blood; whilst the initial lesion is the first tangible sign of the blood disease, reflected in some arbitrary and inexplicable manner to the spot where the virus effected its original entrance.

Two facts are alleged concerning the primary stage of syphilis, upon which the theory of the symptomatic character of the initial lesion is based: (1) that an individual

who has been inoculated with syphilis has always acquired immunity from any subsequent inoculation of the syphilitic virus before the chancre develops; and (2) that extirpation of the chancre does not prevent the regular course of the disease. That there is a period within a certain time after inoculation when the tissues are not refractory to a second implantation of the virus is shown by the fact that when a second or a third inoculation takes place within a short period from the first exposure, successive and multiple chancres result. The immunity, therefore, is not established at once. But it is claimed that after the chancre has once formed constitutional infection is an accomplished fact, and immunity is then complete. In verifying this point, however, the length of time it requires for the chancre to develop should be taken into consideration. The second inoculation might have its effects forestalled and prevented by constitutional infection intervening before the completion of its incubation. While it is true that, as a general rule, auto- and re-inoculation in the primary stage fail to produce any perceptible effect, a sufficient number of cases have been reported to show that the rule is not invariable, and that if immunity be the test of general saturation with the syphilitic poison, we must conclude that the chancre is not positive evidence of consitutional disease, and hence cannot be its symptom.

It may be conceded, however, that in the majority of cases immunity does precede what is known as secondary syphilis. It seems not improbable that a slight degree of general infection may exist in primary syphilis, which, though sufficient to confer immunity upon the individual from any second instalment of the virus, is not insufficient to cause general disease. A notable illustration of such an immunity is shown in the case of the mother of a syphilitic child, who, notwithstanding she may at no time present any outward sign of syphilitic infection, is immune from contagion, and suckles her child with impunity. Moreover, there is nothing in the view proposed that does not accord with the results of preventive inoculation in other infectious diseases.

The results of ectrotic treatment have thus far afforded but little encouragement. It is affirmed to be the rule in infectious diseases generally, which take their origin from a local point of inoculation, that it is impossible to prevent general infection. In syphilis, however, all the obvious signs point to a much slower development than in the others. Certain results reported by Sigmund, of Vienna, would seem to be clearly in favor of abortive cauterization immediately after syphilitic inoculation. Of 57 patients who presented themselves with abrasions after suspicious connection, 35 were cauterized, and of these only 10 developed syphilis. Of the 22 not interfered with, 11 became syphilitic. There were also indications that the earlier the cauterization was practised the better the chance of its success. Thus, of the 35 cases cauterized, in 24 this was done from the first to the third day following the suspicious exposure, and of these only 3 became syphilitic. Of 11 cauterized from the fifth to the tenth day, 7 became syphilitic; and this would tend to show that after the fourth day the chances are against the success of the operation.

Most discouraging is the well-known case reported by Berkeley Hill, in which a patient with a torn frænum, who was cauterized twelve hours after a sexual encounter, returned a month later with the cicatrix indurated, and afterwards developed constitutional syphilis. A possible loop-hole of escape may be found in the supposition that the patient had exposed himself to the disease during his month of absence. Still, there is evidence enough to show that the virus of syphilis passes beyond the reach of caustics within a short period after its inoculation. *A fortiori*, by the time the chancre is developed, it should be still further removed. But though inaccessible to caustics, it has been hoped that the infected part might be included in a free incision, and while the results reported have shown a most exasperating diversity, the fact remains that in a considerable percentage of the cases the occurrence of constitutional syphilis was apparently prevented.

It cannot be said, however, that the results of excision make conclusively either for or against the hypothesis of the local character of primary syphilis. As a manifestation of primary syphilis, the chancre is hardly of more importance than the indolent adenopathy. That the indurated lymphatic glands in the vicinity of the initial lesion are contributory sources of infection, there is little reason to doubt; and were the initial lesion removed they would, doubtless, still suffice to contaminate the system.

While, then, it cannot be affirmed of any period in the course of the malady that the disease is strictly limited to the site of the initial lesion, the proposition that syphilis is essentially a local disease, remains still uncontroverted. As to the hope of preventive interference afforded by the views now presented, it was intimated at the outset that the answer to the question might be equally valid whether based upon theoretical or empirical grounds. Empirically, the answer is so ambiguous that we have been forced to have recourse to theory; and here we find the omens not unpropitious. An infection whose limits are circumscribed, and more or less definable, is a very different thing to one that has already taken possession of the entire organism. During the forty days sojourn of the enemy in its outlying camps, while the insidious infection is slowly advancing its outposts from the periphery to the vital centres, are there no other resources than in excision of the initial lesion, which is but one of the multiple foci of infection, or this, together with extirpation of a few inguinal glands, and in constitutional treatment?

Excision of the initial lesion may have accomplished something. Certainly, when practicable, it is a perfectly rational, safe, and proper surgical procedure. It is removing an annoying symptom, and a possible source of danger to others. In a few instances, excision of inguinal glands, together with the initial lesion, has been reported, but thus far without noteworthy result; though it is by all means desirable that experiments in this direction should be continued. Inspired by the success of Pasteur in his preventive inoculations for charbon, it occurred to Diday that by inoculating a patient recently infected with syphilis with an attenuated syphilitic virus, the course of the disease might be prevented. This idea has never been put in practice, so far as known, but the field of investigation it suggests is an attractive one.

As to the value of medicinal antisyphilitic treatment during the primary stage, there is a diversity of opinion. While it is pretty generally conceded that the employment of mercury in this stage tends to retard the appearance of constitutional symptoms, the apprehension has been expressed by some that in repressing the outward

manifestations of infection we are risking a more serious implication of internal organs. There is an inconsistency, however, in the idea that for the month or so of primary syphilis that same remedy is to be shunned, because of dangerous after-effects, whose continued employment during the years of the constitutional disease is accepted without demur. In how many instances do we administer mercury internally in syphilis for strictly localized lesions; where the general system shows no sign of the disease, and with unquestionable effect. There is hardly any one but admits that when the chancre is formidable in size, or slow in yielding to local measures, a mercurial course will hasten its involution. It must be granted though, that it is taking a very roundabout road to reach the result.

Supposing that mercury does act as an antiseptic in syphilis, it is very questionable whether it could have any effect upon germs circulating in the blood; and it is much more probable that the effect would be exerted where both the germs and the mercurial would be apt to accumulate, as at such places of elimination as the skin, or where deposited in the tissues. That mercury does exert a most decided influence upon the local manifestations of syphilis when topically applied we have undoubted evidence; then why should not this potent influence be brought to bear directly upon those local lesions which are also dangerous foci of infection in the primary period of the disease? It is only recently that the so-called "regional treatment" of primary syphilis has received much attention; nor have any remarkable results as yet been reported. Dr. Bronson said that his own experience has been mainly confined to certain experimental attempts as to the feasibility of the method. It was, therefore, almost purely on theoretical grounds that he recommended this treatment.

The scheme consists in the local use of antisyphilitics by a method designed to bring the remedy in direct communication with the whole of the affected region in primary syphilis, including more particularly the initial lesion and the diseased glands. As commonly employed, the regional treatment has consisted chiefly in the use of mercurial hypodermatics beneath the initial lesion (except this lesion be excised), and into the mass of the indurated lymphatic glands. But the plan may be easily extended. The field of operation may include all of that district whose lymphatic vessels tend in their course toward the ganglia which are the seat of the disease. When the initial lesion is situated upon the genitals the area most available would consist of the external genitals, the perineum, and the upper inner and anterior aspect of the thighs, together with the inguinal region and lower part of the abdomen. By multiple small injections and by inunctions within this area the remedy may be introduced little by little into the lymphatics, with the hope of its being conveyed in sufficient amount to the diseased glands to destroy the infectious germs or to retard their multiplication.

The only agent thus far employed for this purpose is mercury. No substitute for it has been found, and the question is how to introduce this irritating agent into the affected region with the least amount of offence to the normal tissues, but in sufficient quantity to exert its antidotal or antiseptic influence upon the germs of the disease. Where hypodermatics are used it is not necessary that the drug be injected in large quantity in any one spot, nor in a concentrated form. A twentieth of a grain, or less, of the bichloride introduced in separate injections of not over a hundredth of a grain each would afford a more reasonable hope of effectively reaching the seat of the disease than a much larger dose given by the mouth. Dr. Bronson has used a solution of 1 part in 400 or 500 of mucilage and water, with a small quantity of common salt added. Of this, four or five injections are made of four or five minims each, distributed over different parts of the cutaneous area above described. The discomfort caused by the injections is insignificant, especially if care is taken to avoid any escape of the fluid into the corium. The number and frequency of the injections must depend on circumstances and on individual judgment. Into the skin of the abdomen and thighs they may be repeated daily, or every second or third day. Together with these injections, but more especially in situations where the latter are less admissible, as in the perineum and over the penis and scrotum, inunctions also may be employed; and for this purpose a mercurial soap will be found preferable to the mercurial ointment. Many modifications of the plan thus outlined will doubtless suggest themselves. It may be said that regional treatment is also constitutional treatment, as in a degree it doubtless is; but it is something more, and surely it is something better than doing nothing at all.

DR. EDWARD L. KEYES said that Dr. Bronson apparently advocated the proposed method of treatment purely on theoretical grounds, and he regretted that there had not been some practical results to show. It seemed to him, since the complete excision of the initial lesion did not materially modify the subsequent course of the disease, that when the latter has once shown itself the infection is already beyond the reach of any local treatment. His impression had always been that the disease becomes general from the time it is acquired, before the appearance of the primary lesion, which occurs only after a period of incubation. He believed, therefore, that the virus at once got beyond the lymphatic chain. A case was then related in which, notwithstanding the complete excision within twelve or fifteen hours after a suspicious connection, of a small livid papule on the back of the penis which resulted from the latter, the most marked constitutional symptoms subsequently occurred. In this instance there was no further trouble whatever about the local lesion, and not the slightest enlargement of the inguinal glands. Dr. Keyes also referred to Berkeley Hill's and other cases as corroborative of the assumption that the infection is already beyond the lymphatic glands before the appearance of the initial lesion of the disease. Whether washing the parts immediately after suspicious contact would have in any case the effect of preventing infection of the system he could not say.

He went on to say that he hoped Dr. Bronson would follow up the investigation; but the objection to local treatment with the only agent that is of any service afterward, before the diagnosis of syphilis is established, consisted in the fact that such a course is always likely to throw more or less discord into the life of the patient. He also related the case of a student of Bellevue, who, contrary to his advice, commenced a mercurial course in consequence of a slight abrasion of the prepuce. At the end of six months, no evidence of syphilis having in the meanwhile presented itself (with the exception that a

single one of the post-cervical glands became enlarged), he gave it up. Within two years, however, he became the subject of hemiplegia, and eventually died of syphilitic brain disease. As a rule, he believed it is much better to delay treatment until the diagnosis is comfirmed by the appearance of secondary symptoms. Otherwise a patient might be treated for syphilis who did not have the disease at all; and he had known of one instance in which a gentleman who never had the disease took bichloride of mercury for twelve years in consequence of a mistake of this kind.

DR. ROBERT W. TAYLOR said that he agreed with Dr. Bronson that the history of the disease and the analogic evidence afforded by certain other infectious diseases showed that syphilis is at first a local affection. The hyperplasia caused by the virus inoculated resulted in this initial lesion; but a very extended experience had convinced him that neither excision nor cauterization would prevent constitutional infection. Dr. Bronson's idea was certainly a most laudable one; but there is already enough evidence to show that syphilis cannot be exterminated at the radicles. Bloodvessels are frequently found running up to the chancre, and the new-growth cells germinate indefinitely; so that he did not believe that a single case of true syphilis had ever been aborted. He thought that Dr. Bronson was wrong in regard to the mother of a syphilitic infant. It is well known that Collis's law has been generally accepted; but while it is true that a woman can have a syphilitic child and yet not take the disease herself, it is a fact, as shown by Caspari, that she may contract the disease in the regular way.

In discussing inguinal treatment in primary syphilis, Dr. Taylor went on to say we must remember that the circumstances are entirely different from what they are later on. We then have to deal with a nascent disease which exhibits remarkable activity, and hence the most powerful remedies are required to destroy the new growths that are forming. Larger doses of mercury would be necessary to do any good; but we cannot employ the agent in the degree of concentration required, and it is, moreover, impossible to use the bichloride hypodermatically about the legs without producing abscesses.

He agreed with Dr. Keyes that it is most rational to begin the treatment with the secondary stage of the disease. By so doing a more orderly sequence is secured, and the moral effect upon the patient is also much greater when the secondary eruption appears to become at once tractable, a result which in many instances cannot otherwise be attained. There are, however, certain conditions which call for early treatment, and among them are the following:

First. When the chancre is so large as to impede urination; when there is phagedena; and when the chancre is situated about the eyes, mouth, or fingers, where it is liable to give rise to the infection of others.

Second. Where there are social reasons that the true nature of the trouble should be concealed, if possible.

Third. In the case of syphilo-maniacs.

As far as we can judge, mercury acts by causing fatty degeneration of the syphilitic cells, and as these cells do not become matured until the constitutional symptoms of the disease appear, it is highly irrational to use this agent until the secondary stage is reached, since syphilis does not run the tractable course in those who are treated early as in those from whom mercury is withheld until after the primary stage.

DR. BRONSON said that as to the charge that his views were founded on mere speculation, he held that it was necessary that the subject should be approached in a speculative spirit. What he had endeavored to do was to point out the indications which calls for early treatment. If the disease was primarily constitutional, there were no such indications. But the fact that the disease was primarily local did not imply that excision of the initial lesion should abort it. In his argument he had expressly discarded excision as a means of abortion, because by the time the chancre appeared the disease had advanced to the lymphatics. In order to abort it it would be necessary that all the foci of infection should be eliminated, and this has been proved to be impossible. Believing, however, that the disease was still local, he thought it was the duty of the surgeon to treat it regionally and thus counteract the infection as far as possible. The objections that had been urged to this course seemed to him altogether trivial, and he felt confident that any patient would prefer to take the chances of this early treatment rather than do nothing until the fully developed secondary symptoms presented themselves. Although he had no results to offer, he could abundantly testify from his own experience that the method is entirely feasible. If the mercury is employed hypodermatically in the small doses advocated in the paper no abscesses result, and there is not even thickening. The treatment, he contended, is thoroughly rational, although the investigation as to its utility is attended with many difficulties.

THE PRESIDENT spoke of the difficulties that must necessarily be encountered in such an investigation. Among these were the following: (1) The length of time before the secondary stage appears is uncertain; (2) we do not know what is the amount or kind of poison taken into the system; (3) we do not know the nature of the lymph-vessels which are to carry the virus. The disease is comparable to diphtheria. When the latter is local in character it may remain local. It remains local longer in situations where there are few lymph-vessels, as on the tonsils, and becomes constitutional at once where there are many, as about the posterior nares. The constitutional infection does not always take place to the same extent, because the lymph vessels vary in different subjects. Thus, in the fœtus and in young infants it is easy to inject these vessels, while, as the individual grows older, this becomes more difficult. But even in adults there is a great difference as regards the character of the lymphatics.

Another difficulty that presents itself is found in the fact that syphilitic infection sometimes takes place through the bloodvessels alone, as in the case referred to by Dr. Keyes. The same is true of diphtheria, and some of the very worst cases of this disease are those in which there is no glandular swelling whatever. The poison goes directly into the blood, and in these cases the discharges are apt to be more or less bloody. It is, therefore, very difficult to select the cases in an investigation like that proposed by Dr. Bronson.

A paper on *The Treatment of Flat Foot*, by Mr. Bernard Roth, F.R.C.S.E., was read by Dr. V. P. Gibney.

A resolution was then passed endorsing

THE PETITION OF THE GEORGIA STATE MEDICAL SOCIETY

to Congress to place medicines, medical and surgical apparatus, and everything used in the diagnosis and treatment of disease, on the free list.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, February 22, 1888.

THE VICE-PRESIDENT, W. W. KEEN, M.D., IN THE CHAIR.

The Vice-President, DR. W. W. KEEN, reported

A CASE OF MACEWEN'S OPERATION FOR THE RADICAL CURE OF HERNIA, FOLLOWED BY A SPEEDY RETURN OF THE HERNIA.

Macewen's operation has been so generally successful that it is the more important to report the failure of this case, as the immediate result of the operation seemed to promise a cure; but the hernia quickly reappeared.

The patient is a man thirty-two years of age, a fresco painter, but for some time at work dredging oysters. When seventeen years old he first noticed a right oblique inguinal hernia, for which he wore a truss for a year and then laid it aside. The hernia remained cured for thirteen years. A year ago, while at work dredging for oysters, the hernia returned, and descended into the upper scrotum.

He entered St. Mary's Hospital on the sixth of January, 1888, on account of the distress and inability to pursue his occupation. The operation was done on the 13th; on the fifth day I removed five of the nine external stitches, and on the twelfth day the remaining four. There was no pus at any time. The highest temperature was 100.2° F. He had then two chills, the first on the fifteenth day, his temperature rising to 103°; but as there was no evidence of suppuration, as it yielded promptly to quinine and arsenic, and as his occupation had exposed him to miasmatic infection, we were justified in attributing this to malaria.

He was kept in bed for twenty-nine days—*i. e.*, until February 11th. At this time I examined him, and found the hernia perfectly cured. He was then allowed to get up, a spica and compress being applied. Examining him yesterday (February 21), I found the hernia had returned, with, however, one gain—at the time of the operation the external ring was very large, requiring four double sutures. Now it will only admit the point of the index finger. Moreover, he is exceedingly comfortable, so much so that I doubt if I can persuade him to undergo another operation.

An incision was made over the site of the hernia to its lowest point in the scrotum. With the blunt end of the scissors and the finger, the sac was then dissected from the surrounding parts, care being taken to leave no attachment to the spermatic cord. The index finger was then passed within the abdominal wall, and the peritoneum was dissected for half an inch around the circumference of the internal ring. A moderately stout ligature of chromicized catgut was tied to the lower part of the sac, and a series of stitches taken from the lower portion of the sac to its mouth. This stitch, by means of Dr. Ellwood Wilson's curved trachelorrhaphy needle, was then passed through the abdominal wall from within outward at a point half an inch above and external to the internal ring, the skin being drawn upward and outward so as to allow the stitch to emerge through the abdominal muscular wall, but not through the skin. Then traction was made on this stitch, thus puckering up the sac, which latter was drawn through the ring and rested against the inner surface of the abdominal wall to become adherent there, closing the hernial opening by a firm pad. The stitch was then carefully secured in place. The external ring was then closed by four double stitches of chromic catgut, passed from side to side.

Dr. Keen was extremely careful in denuding the inner surface of the abdominal wall to get a large raw surface at the internal ring, so as to gain firm union at that point; and the patient was kept on his back for four weeks; yet it gave way a few days after letting him up.

DR. DULLES asked if any appliance other than the bandage was used after the patient began to go about. The hernia looked as if it had been down some time, and not as if it had descended recently. He thought it would be best not to trust solely to the strength of the tissues for a little while after these operations. There is a point in the mechanics of hernia which he has noticed, and which he has not seen described—and that is, that a patient with an inguinal hernia usually has a pendulous abdomen. He was curious to see if this spare patient of Dr. Keen's would follow the rule, and he did. He believed that the best appliance is not one which makes pressure over the ring alone, but one which corrects this abdominal outline, and changes the direction of the thrust of the intestines from one at right angles to the plane of the hernial opening to one parallel to its plane. Such an abdominal supporter as women wear would answer the purpose, and he believed that it would add to the chances of permanent success after operations for the radical cure of hernia.

DR. KEEN remarked that, of the cause of failure, he could only say that, apparently, the reparative powers did not suffice to obtain adhesion of the sac to the abdominal wall. The usual practice of those who have had a large experience with these operations has been not to use any truss. As to the exact time when the hernia reappeared he could not say. When he examined him, February 15th, four days after letting him up, it was not there. He did not see him again until February 21st, when he found that it had reappeared. He should not wait long before repeating the operation.

CINCINNATI ACADEMY OF MEDICINE.

Stated Meeting, February 6, 1888.

DR. CHRISTOPHER read a paper on

SUMMER COMPLAINT.

(See THE MEDICAL NEWS, March 3, page 229.)

DR. CLEVELAND said that it has been generally supposed that dentition plays no *rôle* in the production of summer complaint. He believed that it does exercise some influence, and that the growing teeth, pressing upon the gums, produce an irritation which reflexly has a tendency to bring about diarrhœa and other troubles. He knew that this influence was exaggerated by the laity, but he was inclined to believe that it has some foundation

in fact, and is an element that cannot be ignored. The subject of summer complaint embraces a number of conditions. Although it is termed thus, yet the disease is not necessarily confined to the summer. It occurs so frequently in summer, because the conditions which favor its development, heat and moisture necessary for decomposition, are most abundant in this season of the year. If the subject be analyzed, it will resolve itself into a question of digestion or assimilation, and that the troubles treated in books under the headings of indigestion, simple diarrhœa, gastro-enteritis, entero-colitis, summer complaint, etc., are one and the same thing, assuming different phases under different conditions. The condition of constipation ought to be considered under the same head.

A child fed on artificial foods will present certain symptoms. After it is fed for a period upon such articles it will, as a rule, grow ill. It begins to lose its plumpness, grows flabby, the secretions of the digestive tract are increased, it has diarrhœa and vomiting, is uneasy, has colicky pains, and hence cries. This continues, and a physician is called. What has caused the attack? The infant has taken starchy food, which it is not able to digest. The albuminous portion is digested in the stomach, but the remainder, passing into the duodenum, remains undigested, the pancreatic juice being insufficient to perform the task. This mass, then, acts as an irritant. It either sours, putrefaction occurs, or there takes place simply an exaggeration of the natural fecal discharges. He concurred in the treatment suggested.

Dr. Rockford thought that it would be well to bear in mind, in the discussion of this paper, what the essayist meant by "summer complaint." Under this term he embraced all the ordinary diarrhœal and catarrhal diseases, mild and severe, occurring among children during the hot months. The chief cause of these diseases the essayist believed to be some form of ptomaine poisoning, but mentioned no other manner in which bacteria may be related to them. This, then, brings us to the consideration of the question, What part do bacteria play in the causation of these diseases? Do they simply act by producing ptomaines, or are they in some other way related to the cause of them? We must remember that the bacteria of disease are few when compared with the bacteria of health, which are many, and everywhere distributed. The non-pathogenic forms are truly the bacteria of health, because they are absolutely necessary to the health and vitality of both the animal and vegetable kingdoms. The growth and development of bacteria in organic material cause the process known as fermentation and putrefaction. In this process the complex organic compounds are broken up into a great many new and simpler compounds, many of which are useful as food to the vegetable kingdom, but which by this process are rendered unwholesome and irritating to the infant stomach, even if there were no poisonous ptomaines produced by the process.

It is also a curious fact, that some bacteria in their growth produce soluble ferments, which act on starch, changing it into glucose, and on albumens, changing them into peptones. The fermentation caused by this class of bacteria is, therefore, of a very different kind from that just spoken of, in that they transform the non-assimilable starchy and albuminous food-materials into materials readily assimilated in the intestinal canal. The one process renders the food unfit for digestion, the other prepares it for assimilation. Yet the two processes are called by the same name—fermentation.

Now it is altogether probable that the bacteria which produce soluble ferments, and which, for this reason, play such a part in the digestive process at all ages, are the chief factors in infant digestion. For at this time of life the glands, which afterward take part in the digestive process, are not yet developed, and have a very feeble working capacity. With this explanation we come back to the question, What part do bacteria play in the causation of summer complaint?

1st. The disease may be caused by ptomaines, as Dr. Christopher has ably depicted.

2d. The disease may be caused by any of the many indigestible and irritating materials formed in the process of fermentation and putrefaction.

3d. The disease may be caused by anything that interferes with the growth and development of the bacteria, which are so necessary to infant digestion.

Dr. Christopher said that he had used the term summer complaint so as to avoid, as far as possible, in the name any theory as to the pathology of the affection; he had used it in preference to the name summer diarrhœa, because he had grouped certain cases of constipation under the same term.

The classification of bacteria into pathogenic and non-pathogenic is somewhat misleading, as some, at least of the so-called non-pathogenic bacteria, are capable of producing disease in man indirectly. Particularly is this true in the case of the *Clostridium butyricum*, whose action in the production of tyrotoxicon, one of the substances capable of producing summer diarrhœa, was mentioned in the paper. Fermentation is invariably the result of the growth of cells. In some of the fermentations the organisms possibly act directly, in others certainly indirectly, as when the immediate cause of the fermentation is a soluble substance secreted by the cell. In all cases of summer complaint there is, undoubtedly, some one or more of the forms of abnormal fermentation occurring in the intestine. The object of the paper was to make a general classification of these forms of intestinal fermentation, and to point out a means of recognizing them clinically, as a rational basis of proper handling of the cases. As to which of the particular products of these fermentations we are to attribute the symptoms of the disease, we cannot with absolute certainty say. But so far as we know, the only products of fermentations, generally speaking, which are capable of producing physiological effects through the nervous system, are alkaloidal substances, the so-called ptomaines. An exception might be made in the case of butyric acid, which is distinctly poisonous. It may be mentioned, in this connection, that probably all of the organic substances which are capable of producing catharsis, or the opposite condition, owe their efficacy to the alkaloids or glucosides which they contain, and which act through the nervous system. If, however, there be produced in the intestinal fermentations of summer complaints, substances other than ptomaines, which act through the nervous system in the production of the symptoms of the disease, the position taken in the paper is not affected.

As to the capability of mere local irritants, such as undigested food, to produce diarrhœa, he is somewhat sceptical. He has, it is true, recognized an acid form of

fermentation in summer complaint, and ascribed the acid fermentation to the decomposition of sugars and starches, but it does not follow necessarily, although probably, that the acid products themselves, acting as local irritants, produce the disease, and this because no starchy food, which we possess, is entirely free from albuminous constituents. Nor is this fact at variance with the clinical observation that patients suffering from this form of diarrhœa should be put on albuminous diet exclusively; because the change from a vegetable to an animal albuminoid is quite sufficient to stop any fermentation in which the former may have been concerned.

The statement made by one of the speakers to the effect that the disease may be caused by anything which interferes with the growth and development of the bacteria which are so necessary to infant digestion, can neither be affirmed nor denied, because our knowledge of the part played in ordinary digestion by bacteria in the intestinal tract is not yet sufficiently developed. It seems hardly probable, however, that the infant is left so entirely to the mercy of chance bacteria as the last-mentioned speaker seemed to imply. The cases referred to by one of the speakers as due to insolation are probably only cases of foudroyant summer complaint, the so-called true cholera infantum, and not the same disease as insolation in adults.

He concluded by saying that the classification which he had presented had been developed by the study of a large number of cases, including the careful examination of many stools. He had found it a good working rule, and could recommend it to others.

CORRESPONDENCE.

VACCINE QUILLS SHOULD NOT BE SCRAPED.

To the Editor of THE MEDICAL NEWS,

SIR: I beg the privilege of space in your esteemed journal in which to state an observation of my own derived from using vaccine virus deposited upon quills.

Last spring we had an epidemic of smallpox on this coast, and during that time there was much vaccinating done. Many of our vaccinations failed, and in quite a number of my own cases where failure ensued I observed a peculiar growth, or excrescence, spring from the point of inoculation, which, at the time, I could not explain. At first I thought it might be keloid, but it was more fungoid in character. It would usually attain the size of a large pea, become wart-like in appearance, but very vascular at the base, easily scraped off with little pain, and would then bleed very freely. These growths only came in those cases where the virus failed to "take;" and in cases where I revaccinated at the same spot, by scraping off the growth, the tumor was destroyed, and the ordinary scar was left after the vaccine ulcer healed.

This winter we have again had an outbreak of smallpox, and in vaccinating have again observed this growth follow in some cases under the same circumstances as those of last spring. I determined to solve the mystery to my satisfaction; and herewith give the secret according to my conclusions.

We have had so many failures with our vaccinations that I had been in the habit of scraping the moistened quills with a knife-blade, thinking, in that way, to obtain all the virus, and then depositing the scrapings upon the denuded surface. After observing the growths, and considering the exciting causes that were suggested to my mind, and the probability of each, it occurred to me that I had been doing "quill-grafting," in the same manner that skin-grafting is done to-day, by depositing the quill-cells upon the living tissue-cells under the most favorable circumstances to insure their growth, reproduction, and multiplication. We try to obtain the freshest virus, and no doubt many of the quills used at the vaccine farms are freshly plucked, and therefore the component cells, at the point of the quill where the virus is deposited, retain their life property of reproducing themselves under favorable circumstances for several weeks afterward.

I am positive that this is the correct solution of the matter. My partner, who used the same quills, but who was not so anxious to obtain all the virus from his quills, and therefore did not scrape them, had no like growths appear among his cases. There is no doubt that to-day there are hundreds of doctors throughout the land who practise scraping the quill when vaccinating, and I offer them the benefit of the lesson derived from my own error, and advise them to discontinue the practice. The growth is of no consequence, except the mental disturbance it is likely to cause a patient or family, who may be suspicious of any irregular occurrence following vaccination; and if scraping the quill should be much practised among physicians, it is likely to be a cause of increasing the popular prejudice against vaccination.

Very truly yours,

A. J. COMSTOCK, M.D.

SAN BUENAVENTURA, CAL., Feb. 22, 1888.

NEWS ITEMS.

The Third Annual Meeting of the Association of American Physicians will be held in Washington, D. C., on the mornings and afternoons of September 18, 19, and 20, 1888. The following preliminary programme has been issued:

The President's Inaugural Address, by William H. Draper, M.D., of New York.

Discussions on "The Relation between Trophic Lesions and Diseases of the Nervous System," will be opened by Drs. Edward C. Seguin, of New York, and William T. Councilman, of Baltimore.

And on "The Absolute and Relative Value of the Presence of Albumen and Casts, and of Renal Inadequacy, in the Diagnosis and Prognosis of Diseases of the Kidney," by Drs. Robert T. Edes, of Washington, and Edward G. Janeway, of New York.

The following papers will be read:

The Cardiac Changes in Chronic Bright's Disease, by Alfred L. Loomis, M.D., of New York.

The Relation between Chronic Interstitial Nephritis and Angina Pectoris, by Samuel C. Chew, M.D., of Baltimore.

Disturbances of the Heart-rhythm with Reference to their Causation and their Value in Diagnosis, by Gustavus Baumgarten, M.D., of St. Louis.

Fatty Heart, by Frederick Forcheimer, M.D., of Cincinnati.

The Cardiac Lesions producing the Presystolic Murmur, by Frank Donaldson, M.D., of Baltimore.

The Treatment of Valvular Affections of the Heart, by J. M. Da Costa, M.D., of Philadelphia.

Clinical Investigation in the Treatment of Cardiac Disease, by James K. Thacher, M.D., of New Haven.

Causal Therapeutics in the Infectious Diseases, by James C. Wilson, M.D., of Philadelphia.

Management of the Stage of Convalescence in Typhoid Fever, by James H. Hutchinson, M.D., of Philadelphia.

The Geographical Differences in Typhoid Fever in the United States, by W. W. Johnston, M.D., of Washington.

The Pathology of the Thymus Gland, by Abraham Jacobi, M.D., of New York.

Gastric Neurasthenia, by George M. Garland, M.D., of Boston.

Neuritis, by Francis T. Miles, M.D., of Baltimore.

The New Cæsarean Section, by William T. Lusk, M.D., of New York.

Is Hystero-epilepsy Better Treated by Medical or Surgical Means? by William M. Polk, M.D., of New York.

Demonstrations in Pathological Anatomy will be made by Drs. T. Mitchell Prudden, of New York, and William H. Welch, of Baltimore.

A National Bureau of Health.—The *Sanitary News* writes that the cheering information comes from Washington that the House Committee on Commerce will report favorably upon a bill providing for the establishment of a Bureau of Health in the Department of the Interior. This is the movement led by ex-President Sternberg, of the American Public Health Association, and if it has the support of Surgeon-General Hamilton, of the Marine-Hospital Service, is likely to become a law. It is earnestly to be hoped that all factions will unite on some measure. Everyone admits the necessity, but everyone will not give way in personal prejudice before national danger.

A Course of Lectures on Domestic Economy and Sanitation.—Domestic economy in most of our homes too often is a term wrongly applied to domestic wastefulness. A movement is on foot in connection with the extensive sanitarium at Battle Creek, Mich., which will give a correct idea of domestic economy to those who take advantage of it. The necessity for scientific instruction in many of the domestic arts, has led the authorities at the sanitarium to organize a school of domestic economy, which will be opened about the middle of March. The course of instruction will continue twenty-five weeks, and will include daily lectures, recitations, demonstration lessons, and practical drills in the following subjects: Scientific cookery, laundrying, dress-making, general housework, household hygiene, including ventilation, heating, disinfection, renovation of sick rooms, sanitary care of the house, purification of water, detection of food adulteration, etc., personal hygiene and the hygienic care of children. Keeping of accounts, and other necessary accomplishments will be taught. Certain qualifications are to be required, and a fee is charged, but arrangements can be made by which the fee can be paid in labor without interfering with the course of study. The incompetent servant girls who afflict all our large cities, and the equally as incompetent wives, would be considerably decreased by the general establishment by large institutions of a semi-public character, of such schools.—*Sanitary News.*

The Chair of Anatomy at Vienna.—The chair of Anatomy, vacant by the death of Professor v. Langer, has been offered to Professor His, of Leipsic.

Pasteur's Treatment at Barcelona.—A recent number of the *Lancet* states that the municipal authorities at Barcelona, as we announced last year, have established a municipal micro-biological laboratory, mainly with the view of enabling persons bitten by rabid animals to obtain the advantages of Pasteur's method of treatment. To the post of director of the laboratory Dr. Jaime Ferrán, whose name is well known as having proposed and carried out a system of anti-cholera inoculations, was appointed, and he has been assisted by Drs. Pauli, Commenge, and Lluch. A report of the work done from May 10 to Dec. 10, 1887, has just been published in *La Independencia Médica.* Altogether eighty-five persons have been subjected to the treatment. Of these twenty-five had been bitten by animals that were certainly rabid, fifteen by those which had been pronounced rabid by medical men or veterinary surgeons, and thirty-seven by animals which were believed to be rabid, but whose condition could not be verified by professional men. The remaining eight persons had not been bitten at all, but submitted to the process in order to prove its harmlessness. The duration of the treatment was more than three months in forty-three of the cases, more than forty days in sixty-three, and less than that in twenty-two cases. Not a single case, either of those who had been bitten or of those who had not, proved fatal. The wounds were caused by seventy-two dogs, two cats, and two mules. Two of them were not bites, but dissection wounds with instruments tainted with the virus of rabies. At first Dr. Ferrán carried out the inoculations of his rabbits according to Pasteur's method—*i. e.*, by trephining. Recently, however, he has adopted a new, and, as he believes, an improved, plan—viz., the injection of a single drop of the emulsion of the medulla containing the virus into the anterior chamber of the rabbit's eye. This produces exactly the same effects in about the same time as the trephining method.

The Limitation of the Number of Druggists in Germany.—In the *Pharmaceutical Era* for January, 1888, Pharmacist Duffield describes the system of the German Government in limitating the establishment of drug shops, and fixing the prices of licenses as follows:

From statistics we find that in very small villages in the agricultural districts, it is considered more prudential to fix the price of a new district for the first few years at about 6000 marks—$1500. For manufacturing regions, where of necessity there will be a greater daily income, the premium must be at least 8000 marks.

In towns of 3000 to 15,000 souls the price for such a district would range from 10,000 to 12,000 marks.

In cities of 50,000 inhabitants, 13,000 to 20,000 marks. For large cities the lowest price for sale of district would be 30,000 marks, and these prices rise in proportion to the size of districts, and the cities they are in—as in larger cities the profits are greater and the amount of sales very much larger than in smaller towns. Should it be determined to divide a district so as to allow another apothecary to come, the Government officer must give thorough investigation and produce authentic figures that the increase of population, etc., has been so great that

the first apothecary will not be injured in making the division. Apothecaries cannot have any other business, and especially are forbidden the sale of wine and beer (Schankgeschäft).

The "wein- und biergeschäft" is an entirely distinct business.

Two *Apotheke* under the one man's name are rarely permitted, and a *Hausapotheke* in a physician's house is not permitted unless he is five kilometres distant from the nearest apothecary shop.

In a place of 20,000 inhabitants, the exact part of the town in which the apothecary shop is to be placed is specified.

Whoever receives the grant for an apothecary district cannot sell or leave it earlier than ten years, except he becomes unfitted to do business.

There are prescribed ordinances under which an apothecary's grant can be sold or closed.

Lay Fictions About Medicine.—Under this title the *Medical Press* describes some current traditions regarding medical matters, and describes as follows a peculiar belief regarding operations upon the eye:

Perhaps the strangest fictions exist in regard to operations upon the organ of vision. Remarkable as it may seem, at least half of the number of non-professional persons who happen to be told that a friend has had an eye removed, will inquire as to the amount of sight which has been left after the operation. But even this fiction is as nothing in comparison with the almost universal one, that an eye can be taken out, carefully washed, put straight, and returned to the mutilated orbit without the slightest detriment, as part of a surgeon's day's work. One of the astounding features of these and other similar fictions is, that quite irrespective of the general enlightenment which characterizes this century, they still seem to display a vigor of existence which common sense is apparently powerless to disperse. However, as far as the medical profession is concerned, the only regret is that surgeons have not the power to take eyes out, and carry them about for a period within the refined corners of the waistcoat-pocket preparatory to transferring them at a convenient time to the tenantless orbits of various patients. It is quite possible if an operation of this nature were practicable a high premium would at once be placed upon the eyes of certain animals, and glass eyes would fall into disuse, and cease to be employed as artificial substitutes for "stopping a hole to keep the cold away."

Vaccination and Erysipelas.—A report by Dr. Airy, on three cases of so-called fatal erysipelas after vaccination, will help in forming a judgment of the sort of foundation on which the fears of an outcome of this character rest. The three children were vaccinated by three different practitioners. In the first case the erysipelas set in too late for it to be possible for vaccination to have had anything to do with causing it; in the second case the child was surrounded with erysipelas in the surgery where it was brought to be vaccinated; in the third case no definite source of erysipelatous infection could be discovered, but the child lived in a low-lying place, close to swampy and unhealthy meadows. Thus, none of these cases were traceable to the vaccine lymph; and its innocence is attested by the fact that other children were vaccinated with the same lymph without the occurrence of untoward symptoms. The question arises next as to the degree of danger of erysipelas entering the vaccination-scratch, or the wound left by a ruptured vesicle, the same as it might any other wound. According to statistics presented by Dr. Buchanan, the proportion of such accidents that occurred in England and Wales during 1883 was 51 infants dying of septic disease out of 763,192 vaccinated. —*Popular Science Monthly*, March, 1888.

The Physiology of Ventriloquism.—At a recent meeting of the Physiological Society, Berlin, Herr Meyer, from Hamburg, discussed the nature of ventriloquism, and combated the opinion, so widely spread among physiologists, that it consists in speaking while inspiring, and without the cavity of the mouth acting in any way as a resonator; on the contrary, ventriloquists speak while expiring, and do move their mouths. An extended series of laryngoscopic observations on the speaker, who has practised ventriloquism for many years, showed that in ventriloquizing the vocal opening of the larynx is shortened as it is when producing the falsetto, and that the soft palate is pressed back and that the uvula becomes invisible. Everybody who naturally possesses a high voice can easily learn to ventriloquise. One most important factor in the deception of the listeners is the contrast between the loud, full, and metallic tone in which the question is asked and the answer which immediately follows in a high and gentle falsetto. Sibilants and the high *I* should be as far as possible avoided. The speaker then gave a series of extremely successful examples of ventriloquism, which did not presuppose any particular training, and showed that it is never accompanied by any special action of the abdominal muscles. Prof. Gad has made some experiments on Herr Meyer, and by graphically recording the variations in pressure of the air, has shown that the curve obtained when a certain sentence is spoken in the ordinary way is in all respects identical with the one which is described when the same sentence is spoken ventriloquially. In the latter case the volume of air expired was considerably less than during normal speech; in one particular case it amounted to only 900 c.c., whereas during normal speech the volume expired was 1300 c.c. Dr. Benda expressed his idea that when ventriloquizing, the Eustachian tubes are open, and the cavity of the tympanum, together with the tympanic membrane, is set into simultaneous vibration. He had not been able to detect any resonance of the tympanic membrane in Herr Meyer; but he believes that this explanation of the curiously veiled tones emitted is not thereby invalidated, since they closely resemble the tones produced by speaking while yawning, in which case the Eustachian tubes are certainly open and the tympanic cavity acts as a resonator.—*Scientific American*, Feb. 18, 1888.

Sewage Farming in France.—The project to utilize the sewage of Paris in the lower part of the forest of St. Germain has been ratified by the French Chamber notwithstanding the opposition of the residents in that district, who fail to see, in the more prolific growth of cabbages and other edible vegetables, an adequate compensation for the almost inevitable inconveniences of so odoriferous a neighbor. Victor Hugo's remarks on the wastefulness of the present system of sewage disposal

in his well-known work *Les Misérables*, will not have been merely interesting if they have aided in bringing public opinion round to his views. It was urged that over £1,000,000 were lost annually to agriculture by not consigning sewage to its natural destination—the soil, but all such estimates must be taken *cum grano*, seeing that in this country, where the system has been carried out on a very large scale, and on the most scientific principles, the authorities consider themselves very fortunate if they succeed in covering their expenses—a result indeed which is very seldom attained. If the scheme prove satisfactory, and there is no reason why, with certain restrictions, it should not do so, the present system of scavenging will be abolished in Paris in favor of the principle of "everything to the sewer."—*Medical Press.*

Lime Salts in the Food and Teeth.—Miller, of Berlin, has been making experiments to determine how far changes can be produced in teeth by the presence or absence of lime salts in food. His method is to extract a tooth from a healthy dog, and then to feed the animal upon food containing but little lime salts for three months; then to remove a second tooth, and change the food to one containing an excess of salts. After four months of this treatment another tooth is extracted. The author has found that an appreciable loss of lime salts occurs in the first stage, which amounts in one case to more than one per cent., and that the proportion of lime salts rises again to normal during the second stage.—*Popular Science Monthly*, March, 1888.

Loreta's Operation on the Stomach.—Some two months ago Mr. Treves performed this operation at the London Hospital upon a man suffering from fibrous stricture of the pylorus. At the time of the operation the patient was very much reduced by pain and constant vomiting, and had been for some time unable to take food by the mouth. The abdomen and stomach were opened, and through the incision made in the viscus the pylorus was dilated with the fingers. The man made a rapid recovery, and has not vomited since the operation. He can now take any food well. The case will be shown at the next meeting of the Clinical Society.

Typhoid Infection in Sewer Air.—The *Sanitary News* of February 18, 1888, writes that a most important contribution to the study of the methods in which disease may be communicated may be looked for very soon from Professor Victor C. Vaughan, director of the Michigan Laboratory of Hygiene. Heretofore there has been lacking positive evidence as to the communication of contagious diseases through the sewer air entering the house atmosphere through defects in the house-drainage system. It has been pretty generally believed that disease could be so communicated, but positive instances of its being communicated in that manner have been unproved. The most that sanitarians have been willing to claim has been that sewer-air was improper atmosphere to breathe and might be the vehicle of germs of contagious diseases. No one has before proved that it has absolutely been known to be the vehicle by which contagious disease has been spread. This is to-day a proved fact. An epidemic of typhoid fever has been prevailing at the Michigan State Prison at Jackson. A committee from the State Board of Health was invited to make an investigation of the causes of the epidemic. The water-supply and milk-supply were first ruled out as possible vehicles by negative evidence. It was then thought that the defective condition of the sewers, combined with the insufficient supply of fresh air, was the most probable cause of the epidemic. The cases nearly all were from a distinct portion of the prison, and investigation proved that the soil pipe running from the hospital, and the house-drain into which it entered, were defective, and were pouring sewer air into that portion of the prison. Professor Vaughan took to his laboratory a sample of the air from within the soil-pipe, and has found within it the specific germ of typhoid fever. This fact explains the epidemic. The first case may have been introduced into the prison in a new prisoner, but once the germs of the disease were introduced into the soil-pipe with the undisinfected fecal discharges of the patient, the infected soil-pipe and sewer spread it freely throughout the portion of the prison into which they were pouring their contaminated atmosphere. The cause and effect are logically connected. The committee from the State Board of Health recommended that before there is any digging into the sewers or drains, there should be thorough disinfection by pouring into the drainage system, half a barrel of solution of bichloride of mercury, one part of chloride to four hundred of water; that, after such disinfection, the soil-pipe leading from the hospital be taken up and reconstructed under the direction of a competent sanitary engineer.

Nuns as Nurses in Paris.—A Paris physician, writing to the *Medical Press*, states that, contrary to the common belief, the change in the system of nursing which was inaugurated some years ago by the Paris Municipal Council was one which, with every respect to the pious and devoted sisterhood, was urgently required, and this for two sets of reasons. First of all, the nursing, as such, was far from satisfactory, as anyone who has frequented the French hospitals can testify. The work was mainly done, not by the sisters, who merely superintended, but by more or less incompetent and untrustworthy *infirmiers* and *infirmieres* who could not justly be charged with making up in zeal what they lacked in discretion.

In the second place the position occupied by the sisterhood in the hospital was based on such special privileges, rights, claims, and demands that they formed a perfect *imperium in imperio*, to the detriment of efficiency, order, and obedience. Moreover, they were incapacitated from assisting at confinements and various other categories of cases. One would have thought that our own experience of a system in which the nursing staff could beard the medical officer, and even openly decline to accede to his wishes, would have been sufficient to explain the zeal with which their services have been dispensed with. With several years' experience as an assiduous student in Parisian hospitals and elsewhere, in which the nursing was done by *religieuses*, I must confess that I cannot speak with favor of them, either as nurses or as respects their attitude toward the medical staff. I say this with some regret, seeing that personally I entertain the greatest respect both for their devotion and their abnegation.

Bread as a Disinfectant for Walls.—Esmarch concludes a series of extended experiments on the disinfection of rooms, with the conclusion that were he relying on these

experiments, to recommend a method of disinfecting walls, he should give the preference before all others to rubbing with bread. The wall is thereby most certainly cleansed from all germs; the procedure is absolutely without danger, and makes possible an immediate occupation of the room, which can scarcely be considered justifiable after disinfection with corrosive sublimate; and, finally, it is easy and inexpensive even for untrained people to carry out. He believes also that in this way the danger of subsequent infection from the wall is reduced to a minimum, so far as can be judged from the standpoint of knowledge we now possess. — *Medical Chronicle*, February, 1888.

Female Hospital Assistants in India.—The *Indian Medical Gazette* for December, 1887, states that the Government of Bengal has issued a resolution regarding the admission of female students into the Campbell Medical School for the purpose of undergoing the course of medical instruction and training laid down for Civil Hospital Assistants. It is hoped that these students will "practise in the larger villages of the mofussil under the same conditions and among the same class of the people as hospital assistants." The standard of general knowledge required before admission has been fixed at a lower level than for male students. This is a very doubtful concession to what the Director of Public Instruction calls "the want of education among women in Bengal." They are to undergo in every respect the same course of medical instruction as the male students; but special arrangements are made for their accommodation in the lecture and dissecting-rooms, for their lodging and conveyance, and ten scholarships of Rs. seven a month tenable three years have been assigned to them.

The scheme is confessedly experimental. It remains to be seen whether young native women educated in mixed classes in this and other schools will be acceptable visitors of zenanas.

Death in "Blizzards" due to Asphyxia.—MARKHAM writes to the *Journal of the American Medical Association* of February 18, 1888, stating that there is an amount of evidence and a combination of circumstances sufficient to show that the greater number of the several hundreds who lost their lives in the recent great "blizzard" of the Northwest perished from asphyxia and not by freezing. Many of the bodies, when found, were in the position of grasping or clutching at their own necks or throats. Indoor witnesses describe the atmosphere as having an appearance of density and darkness, similar to that stated by divers as existing when submerged with their armor in deep water. Many that escaped describe their peril as being from loss of breath or suffocation.

The terrific hurricane force of the wind, loaded with falling snow—the latter being by a fall of temperature, whose degree and suddenness have no recorded parallel, converted into dry crystals, and thence by the gale ground to a fine, dry ice-dust—these conditions produced a state of the atmosphere as unfit for respiration and aëration of the blood as is water for warm-blooded animal life.

Anton De Bary, a celebrated botanist and biologist of the University of Strassburg, died recently of carcinoma of the face, aged fifty-seven.

NOTES AND QUERIES.

JOSEF HOFMANN'S PULSE.

To the Editor of THE MEDICAL NEWS,

SIR: Your issue of the 25th ult. contains an able editorial on the health of the celebrated young pianist, Josef Hofmann. It may be of interest to your readers to know, in connection with the other symptoms referred to, that his temperature, taken in the mouth on the evening of the examination referred to in your editorial was a shade above 100° F., and that his pulse at the same time was 100 in the minute, and presented some irregularity in its rate, rhythm, and tension. This observation has been repeatedly made by myself, as his medical attendant before and since his examination by the medical commission from whose report the above facts are gathered. Very respectfully,

SIMON BARUCH, M.D.

NEW YORK, March 1, 1888

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM FEBRUARY 28 TO MARCH 5, 1888.

FISHER, W. W., *First Lieutenant and Assistant Surgeon.*—Sick leave extended one month on surgeon's certificate of disability.—*S. O. 50, A. G. O.*, March 2, 1888.

SHILLOCK, PAUL, *First Lieutenant and Assistant Surgeon.*—(Recently appointed.) Ordered for duty at Fort Assiniboine, Montana.—*S. O. 50, A. G. O.*, March 2, 1888.

APPOINTMENT.

SHILLOCK, PAUL.—To be Assistant Surgeon, with the rank of First Lieutenant, January 31, 1888.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MARCH 3, 1888.

HEYL, T. C., *Surgeon.*—Orders to the Receiving Ship "St. Louis" revoked.

WHITE, C. H., *Surgeon.*—Present duty continued to October 1, 1888

STREETS, T. H., *Surgeon.*—Ordered to the Receiving Ship "St. Louis"

DRENNAN, M. C., *Surgeon.*—Ordered to the Receiving Ship "Vermont."

BRUSH, G. R., *Surgeon.*—Detached from the Receiving Ship "Vermont," and ordered to the "Pensacola."

MEANS, VICTOR C. B., *Past Assistant Surgeon.*—Detached from the Naval Hospital, New York, and ordered to the "Pensacola."

HOCHLING, A. A., *Medical Inspector.*—Detached from the "Pensacola," and wait orders.

HARMON, G. E. H., *Passed Assistant Surgeon.*—Detached from the "Pensacola," and wait orders.

EDGAR, J. M., *Passed Assistant Surgeon.*—Detached from the "Pensacola," and waiting orders.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING MARCH 3, 1888.

STONER, G. W., *Surgeon.*—Detailed as Chairman of the Board for the Physical Examination of Officers and Candidates, Revenue Marine Service, February 28, 1888.

URQUHART, F. M., *Passed Assistant Surgeon.*—Detailed as Recorder of the Board for the Physical Examination of Officers and Candidates, Revenue Marine Service, February 28, 1888

KALLOCH, P. C., *Passed Assistant Surgeon.*—Relieved from duty at Pittsburg, Pa.; ordered to Marine Hospital, San Francisco, Cal., March 2, 1888.

CARRINGTON, P. M., *Passed Assistant Surgeon.*—Relieved from duty at Marine Hospital, San Francisco, Cal.; ordered to assume charge of service at Pittsburg, Pa., March 2, 1888.

KINYOUN, J. J., *Assistant Surgeon.*—Granted leave of absence for twenty days, February 28, 1888.

THE MEDICAL NEWS

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LII. SATURDAY, MARCH 17, 1888. NO. 11.

ORIGINAL ARTICLES.

NOTES ON PROGRESSIVE STUDIES IN ETIOLOGY, AND ESPECIALLY AS TO MICROÖRGANISMS AS SOLE FACTORS OF DISEASE.

BY EZRA M. HUNT, M.D.,
SECRETARY OF THE NEW JERSEY STATE BOARD OF HEALTH, TRENTON, N. J.

FOR the past few years no subject has more attracted the attention of physicians and sanitarians than the relations of microörganisms to disease. So soon as medical experience and some approach toward science began to take the place of superstition it could not but be that inquisitive minds would seek to know the cause of disease. This was especially the case with epidemics that seemed to light on persons and places regardless of choice. It was at once natural and plausible to maintain that the visitation was independent of locality. The wind bloweth where it listeth. It is "the epidemic constitution of the atmosphere" was the learned phrase under which ignorance of causation was concealed. So in 1839 we hear Dr. Farr, the Registrar-General of England, saying:

"Difficulties in the history of plagues and contagious diseases of every description have generally been disposed of summarily by the hypothesis that the disease is always introduced from without and spreads naturally—like a conflagration. It is true that they are frequently introduced thus, but this neither proves that all diseases are always thus introduced, nor does it at all show the relation of the number of cases of seizure or of mortality to the conditions of persons and surroundings."

It was not long before the awakening medical mind began to suspect that it was necessary to guess about or explain what this impalpable vapor, particle, or thing might be which *introduced* the pestilence. Fortunately, many conceived that there were other practical questions also, such as, How to limit extension and mortality after arrival? But there were some early inquiries in the direction of seeking the relation of certain living particles to disease. About fifty years ago, Dr. Holland, in his *Medical Notes and Reflections*, discussed the hypothesis of infusoria as at that time a more probable doctrine than that of vegetable parasites. In the *British and Foreign Medical Review* for April, 1840, is to be found the following:

"The hypothesis that the causes of epidemics are generations of minute insects transmitted from one individual to another through the medium of the atmosphere, has been ingeniously put by Dr. Holland, in his *Medical Notes and Reflections*. Henle, of Berlin, has supported the theory by new facts and analogies. The diffusion of contagion has a close analogy with fermentation; and Cagniard-Latour and Schwann have shown that fermentation is the decomposition of organic fluids by minute vegetables of the lowest class. Putrefaction is a destruction of organic matter effected by infusoria, and not a mere decomposition into elements. One contagious disease, the muscardine of the silk-worm, is known to depend on the development of a vegetable parasite. The germs are innumerable, and spread with the greatest rapidity. In mixtures, certain genera of infusoria appear, and then give place to new genera. Individual cases of disease may be caused by one generation of parasites; an epidemic by successive generations. Each epidemic disease has its specific animal contagion, its specific genera of infusoria. Henle has proved the existence of this cause, and the theory in every way but one; he has never seen the epidemic infusoria. The omission is, no doubt, important; and the more so on the part of Henle, who is justly considered one of the best microscopic observers in Germany. The infusorial hypothesis does not satisfactorily explain the cause of epidemics; it accounts for them by the creation of animalcules, but does not show why the animalcules are created at distant times in swarms. The phenomena of swarms of insects, of blight, and of infusorial generation may suggest investigation, but in the present state of pathology they cannot supply its place."

Earlier than this, in 1833, Dr. Tyler had enunciated the fungoid doctrine of disease as accounting for the origin of the cholera in India. This pamphlet of sixty pages was entitled "Facts Establishing the Deleterious Properties of Rice as an Article of Food," see *Lancet*, vol. I. 1833–4. In 1838, Boehm, of Berlin, had written his article "Die kranke Schleimhaut in der Asiatischen Cholera, Berlin, 1838." As to it in 1866 Sir John Simon said:

"If the doctrine of a cholera-fungus should hereafter be substantiated, it will probably be conceded that Boehm deserves the credit of having first published a thoroughly valid account of the phenomena of cryptogamic vegetation in choleraic intestines and discharges, and Hallier's researches do not better join on to the recent essays of Thomé and Klob, than they might have joined, in 1838, on to those of Boehm. The fifth section of his admirable little book is entitled 'Ueber das Vorkommen der Garhungskeime (Pilze) im Nahrungs-kanal der Cholerakranken." In it he describes as almost constant, that the whole extent of the intestine (but generally the large intestine the least) teems with a vegetation of microfungi; that innumerable round and oval, or more elongated, corpuscles are to be found in all the vomit and dejections as well as in the canal; sometimes single, sometimes two, three, four, or more joined end to end, as links of a chain; and these chainlets sometimes branching; that such forms are held together in mucous floccules and come best to light when liquor potassæ is used; that within the small intestine they are often so numerous that not the smallest specimen will fail to show numbers of roundish, fungic forms amid the débris of epithelium. He appends an illustration which shows quite

unquestionably the forms of cryptogamic growth, and refers, for similar forms, to Schwann's then recently published investigations of yeast."

Henle too, in 1840, in his *Pathologischen Untersuchungen* showed that the "contagium vivum" that had been indefinitely talked about must be a living organism, since it grew and multiplied in the body of the infected host by assimilating other substances than its own. Even by the light of modern microscopic knowledge we cannot wonder at the imperfect distinction between these low forms of animal and vegetable life, although we now owe so much to plant-pathology in the elucidation and confirmation of the subjects. It was really this vitalistic view of contagion that Pasteur revived about 1860.

In 1848, "Dr. Cowdell, of Dorchester, England, sought to establish on theoretical grounds that cholera must depend on a microscopical fungus absorbed through the lungs into the blood and multiplying in the blood and bowel."

Early in 1849, Prof. Mitchell, of Philadelphia, had published his article "On the Cryptogamous Origin of Malarious and Epidemic Fevers."

In the autumn of 1849, there was, says Dr. Simon, for a few weeks a great deal of talk in England about the cholera-fungus. This arose from the publication of Drs. Brittan and Swayne, of Bristol, in the *Medical Gazette* and *Lancet:*

"These writers had for some two or three months been acting in relation to cholera as a microscopical committee for the Bristol Medico-Chirurgical Society, and in their examination of choleraic discharges had, independently of one another, observed, often in very large numbers, certain peculiar forms ('annular bodies,' 'cholera cells,' etc.) which they believed to form a connected series, and to be characteristic and causative of the disease. These forms, they said, were of smaller size in the vomit than in the dejections; and Dr. Brittan, stating that he had found still smaller bodies of the same sort in the atmosphere of cholera districts, put forward a note from Mr. John Quekett, then an eminent microscopist, to the effect that he having examined Mr. Brittan's specimens from air, vomit, and dejection, 'had no hesitation in stating that in his judgment they were successive stages of development of the same body, which he believed to be of a fungoid nature.' Dr. Budd, of Bristol (*Times*, September 26th), added that he had found the same peculiar microscopic objects 'which seem to be of the fungus tribe in great numbers in almost every specimen of drinking water which he was enabled to obtain from cholera districts;' a statement which appeared particularly important in connection with the very original and remarkable views then recently put forth by the late Dr. John Snow, in a little paper which now has historical interest, 'On the Mode of Communication of Cholera;' for Dr. Snow was contending that cholera is primarily an affection of the intestinal canal; that it is excited by the accidental swallowing of contagious matter discharged from the bowels of the sick, something which being swallowed can increase and multiply within the stomach and bowels; and that the great agent of such infection is drinking water. Dr. Budd in the above quoted letter, and in a pamphlet which he soon afterward published to the same effect, brought the various views interestingly together, and recommended as a most important precaution the disinfection of the discharges of the sick by receiving them 'into some chemical fluid known to be fatal to the fungous tribe."

But the adverse report of a committee of the College of Physicians and the cessation of the cholera seemed so to suspend this view that only Dr. Swayne answered the committee.

It was not until about 1866 that observations in the same general direction, made by Thomé, Klob, and Hallier turned new attention to the subject. These are thus described by Dr. Buchanan in his abstract of Professor Ernst Hallier's recent researches into the natural history of the cholera fungus (1866).

"Hallier's observations were made on the stools of a person with cholera at Berlin in 1866, and on the stools and vomit of a cholera patient at Eberfield in 1867. In the stool from Berlin, the characteristic vegetable elements consisted of a fine fungiform matter (Hefe) which floated, and of more highly developed spore-cysts (Fruchte) which sank to the bottom. These spore-cysts are described as yellow or brownish bodies, consisting of a pale membrane inclosing highly refracting, colored spores. The cyst-wall undergoes a series of changes, ending in its rupture or solution, and the spores then become free. The spores, by progressive partition—a process which may begin before they leave the cyst—resolve into very small cells, grouped into balls and heaps which Hallier calls "colonies" of micrococcus. The small cells of micrococcus constitute the fungiform matter (Hefe) which is the other vegetable element seen in the evacuations. The minute micrococcus cells attach themselves to any bodies there may be in the stool—to remnants of animal or vegetable food, to epithelium cells, or to oil globules; and under the influence of the micrococcus, these and all nitrogenous matters got a dirty aspect and lost their structure."

The chief advance of Hallier seems to have been in the detection of "highly developed cyst-formations with the contained spores in a state of actual germination." No one can go over his researches and experimental methods without recognizing how far he approached toward investigations that have since been accounted as original. Indeed, it is to such botanists as Hallier, Hoffmann, Cohn, and Davaine that we owe the revival of interest in the study of these minute forms, some of which it is believed had been seen by Leuwenhœcke as early as 1675, and since by various observers, but had not been so closely associated with diseases. But now the attention of physicians had been arrested, as had been that of Prof. Panum (1856), of Copenhagen, and a few others. From 1870 onward the relation of microörganisms to disease has been as prominent among pathological as among botanical investigators. "The researches of MM. Davaine, Hallier, and Cohn upon the bacterium of charbon and the micrococci of contagious maladies were taken up by chemists, pathologists, and microscopists, until in 1876, the papers of Cohn and the skilful cultivations of Koch of the bacillus anthracis so as to carry it through the stages of development and give its life history, established, in one instance at least, a direct relation between a microörganism and a disease. But

physicians generalize much more rapidly than do most painstaking specialists in so minute inquiries. Although ten or more years have passed, we may well remember that it was Cohn who says:

"So long as the makers of microscopes do not place at our disposal much higher powers, and as far as possible without immersion, we will find ourselves in the domain of the bacteria, in the situation of a traveller who wanders in an unknown country at the hour of twilight, when the light of day no longer suffices to enable him to distinguish objects, and when he is conscious that, notwithstanding all his precautions, he is liable to lose his way."

With this caution, at that time, we have good reason to inquire as to our progress since.

It will, we believe, show that most laborious and valuable work has been done, and that we are in the region of great possibilities in the effort of restraining or preventing disease. But it will also show us that too many of the *practitioners of medicine* are generalizing and arriving at conclusions faster than the biological investigators.

First of all, let it be noted that since then (1880) Magnin closes his treatise thus:

"As to their *rôle* (microörganisms) in fermentations, in putrefactions, in contagious diseases and in surgical lesions, notwithstanding the considerable number of labors of which the bacteria have been the object in the different points of view, it is not yet possible to define it in a certain manner."

Surgeon Sternberg, the translator, adds his own approving and emphasizing note.

In 1886 E. Klein opens his excellent manual on microörganisms and disease by cautioning us against taking "as proved what has really not passed beyond the stage of possibility."

Following Prof. Koch, he then states the conditions, without which, "in no instance, can it be said to have been satisfactorily proved; that a particular infectious disease is due to a particular microörganism." He then enumerates five non-pathogenic or septic organisms, and sixteen pathogenic forms, as claimed to have been subjected to some or all of the tests proposed.

Of these, the only ones with which the practitioner among human diseases has in general to deal are: typhoid fever, malaria, anthrax, tuberculosis, and Asiatic cholera. It is notable that neither smallpox, measles, scarlet fever, diphtheria, nor whooping-cough is included. It is also noticeable that as to the microörganisms of typhoid fever, Klebs, Eberth, and Koch are not in agreement that they have not answered the crucial tests relied upon by bacteriologists, so that Klein does not regard them as shown to be "necessarily or intimately connected with typhoid fever."

As to malaria, the observations of Tomassi-Crudeli have not been accepted as conclusive by any considerable number of bacteriologists, while the malarial germ of Laveran has claims to recognition.

As to the tubercle bacilli, the presence of this special form, among others, in tuberculosis is admitted, but so long as such observers as Toussaint, Klebs, and Schüller claim that tuberculosis is due to a microörganism, which is a micrococcus and not a bacillus, and so long as Schottelius and Klein deny the identity or interchangeability of the human and the animal (bovine) disease, although the same microörganism is found, we certainly cannot assert it to be proven that this is the *causa vera* of the disease.

Opposite the comma-bacillus of Asiatic cholera there are still several interrogation points. "Comma bacilli of various species have been found in other diseases of the alimentary canal; in the fluid of the mouth of normal persons (Lewes), and in old cheese (Denike)." Similar criticisms apply to most of the microphytes claimed as the cause of some animal diseases, and even certain variations as to anthrax, are still dubious. Thus Pasteur, p. 154, says they do not form spores; at p. 426 Klein says they do.

Prof. A. De Bary, in the recent edition of his *Lectures on Bacteria* (Oct. 1887) states similar views with great precision, and with many cautions against too rapid scientific or clinical deductions.

Says Prof. De Chaumont (1887), "Those who have followed the development of the (microbe) question during late years know what extraordinary studies have been made and yet we are, as it were, merely hovering about the gate and have barely entered the field at all. Some who have got within the gate astonish us with their accounts, more or less confused, of the wonders to be found within, while others still stand outside on the beaten track crying out that there is nothing in the field and that all is vanity."

Also, "It is true that we have the bacillus of anthrax and the bacillus of tuberculosis, the connection of which with these diseases is undoubted, but it still remains to be *proved* that each is 'teterrina causa morbi.'"

As "It is shown that pathogenic bacteria (or what are believed to be so) propagate best under unhygienic conditions, light, fresh air, and pure water being inimical," it behoves us to give great consideration to *that class of causes which are generally most decisive of results.*

Such facts as these do not show but that we are in a wide and important field of investigation, since the presence of special and typical forms may be a great aid to diagnosis, and the cessation of the forms under treatment may point to the best therapeutics; but we must not assert that these *cause* the disease until more evidence is in, and a little more analysis and summing up occurs. So Dr. Karg, of Dresden, in his recent summary of the work of Weisser well remarks, "One must admit that our knowledge of the conditions of life for the micro-parasites, notwithstanding the most zealous labors in the field of medicine, are by no means so advanced that we can give a satisfactory and comprehensive judgment concerning their action in the living organism in which the relations are so exceedingly complicated."

There are now other considerations that must be given due weight.

(*a*) All animals do not show the same results, and it is unsafe, therefore, to infer that culture experiments in animals verify what would or does take place in man. Thus, "Rodents, carnivorous animals, and monkeys must be considered unsusceptible to cholera. In connection with all the experiments said to have yielded positive results on guinea-pigs, it must be mentioned that a variety of bacteria are known, which, although derived from *normal* but putrid secretions, act very poisonously on rodents—*e. g.*, the bacillus isolated by Bienstock from normal human fecal matter; the dumb-bell micrococcus isolated by Pasteur and Sternberg from normal saliva, by Escherich from the stool of milk-fed infants, and by Klein from sputum in pneumonia" (see Klein, p. 186).

(*b*) On the point of the harmful effects of septic bacteria in diseases regarded as specific, read, for instance, the abstract of the report of Prof. E. Crookshank to the Agricultural Department of Privy Council, read before the London Pathological Society, January 17, 1888, and to be found in the *Lancet* of January 21, 1888. Thus he identifies the streptococcus pyogenes of acute abscesses as present in various diseases. He says, "For some time my attention has been drawn to the probable identity of organisms described in puerperal fever, measles, scarlatina, and diphtheria with the chain-forming micrococcus in pus, and I find that, independently, bacteriologists on the continent have not only considerably extended that idea, but have come to definite conclusions." He names over twenty diseases of the communicable class in which the presence has been noted and recognized as the determining factor as to gravity of attack. "Thus, Passet, Biondi, Eiselsberg, Baumgarten, and Fränkel have definitely accepted the identity of the streptococcus associated with suppuration, and the streptococcus associated with erysipelas. The same has been asserted by good authorities as to hospital gangrene and puerperal fever (see Rosenbach, Fränkel, Cushing, and Baumgarten). So as to diphtheria, Fehleisen and Baumgarten found the species identical with the streptococcus in erysipelas. It is admitted that there are differences of manifestation, but the same essence. Similar results were asserted by skilled and accepted observers as to scarlet fever and other diseases. This accords with the clinical observations of Sir William Jenner long since made as to the agency of sepsis in the determination of grave symptoms and fatal results in scarlet fever and diphtheria."

(*c*) There is still respectable disagreement among leading authorities as to whether common or septic may change into pathogenic microörganisms, or as to possible modifications of pathogenic forms by culture and surroundings, as also of their products. Klein, for instance, while taking ground against Buchner and Sattler as to harmless microörganisms assuming pathogenic properties under the influence of soil or surroundings, still speaks of it as an "open question." Compare Billroth, Nägeli, Zopf, etc., who still more open the question as to the effect of modifications of species and of their effects due to the poison or environment.

(*d*) It is only of late years that we have come to recognize the very great numbers of different classes, species, and groups of microörganisms that are often present, and at different times present or absent in the same disease or in the same fluids, and so the task of differentiating which are hurtful and which is the one and the only one that is operative constantly; which is pathognomonic of the disease, and its specific cause is rendered more difficult.

(*e*) It is one thing to find a form or class always present, and another thing to prove that it is the *fount and origin*—the *true cause* of the disease. Cheyne, speaking of the tubercle bacilli, says, "It is probable that a variety of conditions, such as special predisposition, are necessary before they can grow in the living body." This applied to various diseases, simply indicates the meaning that a diseased or abnormal condition being in the system, the appearance of microbes of special forms belongs to the phenomena of disease, or is one among the causal relations.

Presence in itself considered never indicates cause, but often an effort of nature to deal with and dispose of disease products. De Bary says a microbe may be diagnostic of disease, and yet not be its cause.

(*f*) It was only after much had been said of the microörganisms of disease that we came to realize that the *rôle* played in the economy of nature, or of animal life by microörganisms is *essential* for the maintenance of life. Hence it was almost a surprise when we reached the term *harmless bacteria*, and still more the term *indispensable bacteria*, and finally have so good an authority as Watson Cheyne sum up an article on the subject (1884) by proposing an inquiry as to how to so deal with the pathogenic organisms as to make them useful instead of hurtful.

(*g*) Microbes have so much to do with what are after all chemical processes that we are not to so far accept biology as to overlook chemical metabolisms of disease. The biological facts still leave a study of disease from the standpoints of physiological and pathological chemistry. Germane to this is the recent paper of M. Vignal to the Académie des Sciences, published in *La France Médicale*, No. 99, an article in which not only are the number and variety of microbes in the alimentary canal noted, but the remarkable or different powers of chemical metabolism which they exercise. The claims of Pasteur for the wonder-workings of microbes in the usual processes of digestion, and their necessity, are in the same line.

(*h*) A new field of inquiry opens as we study the

products of microörganisms and the poisonous products of decomposition. As to either of these we do not yet know all the relations that are biological or all that are chemical. Thus, in anthrax it is not the bacillus, but, as Hoffa and others have shown, "the poison products accumulating in the blood that cause the fatal issue." So there is claimed to be a cholera ptomaine. See, also, the researches of Brieger on the tetanus bacilli, and of Rosenbach as to the two alkaloids, tetanin and tetanotoxin, both of which, introduced into animals (without the bacillus) produce their specific action. So in the various ptomaines (Selmi) and leucomaines we have to deal, perhaps, with chemical products, and not with actual animal or vegetable life *in situ*. In fact, septic poison or sepsin results from various chemical processes which in themselves are destructive of every living microörganism.

(*i*) More recently we have important contributions as to the coöperations and antagonisms of different classes of microörganisms, showing that the destruction of one form may be the removal of the most hopeful method of getting rid of another form.

Dr. Garre, a leading Swiss bacteriologist and lecturer at Basle University, has recently studied the relations existing between a non-pathogenic bacterium growing in putrescent fluids, in the water of wells, etc., and shown its antagonism to the bacillus typhosus, etc. "The explanation of the antagonism lies in the fact that microbes secrete some specific, highly diffusible substances which prove poisonous to certain species of bacteria, while having no effect on others." He shows, by several experiments, that it is not the crowding out or starving out of one species by another, but a direct germicidal effect (see *Fleming's Veterinary Journal*, October, 1887, p. 305).

This brief review is of itself sufficient to show that we are very far from being prepared as yet to settle the relations of microörganisms to each other, or to disease; to define which are specific and which are not, to tell how pathogenic organisms become so, or how they produce results; whether they are causative or merely coöperative; in a word, are not prepared to base any system of clinical practice thereupon.

This caution is not so much needed by the bacteriologists, many of whom give full weight to such facts, as by those who from some special results or discussions point to special and positive conclusions. The study of what is actually present in disease is always important, not only as finding whether the presence is an *arrival* which has initiated the processes which constitute the disease, but also as finding what are its other exact relations to the disease. For, if finding either that it is integral or incidental to the disease, or only diagnostic, in either case it is important to know the effect of this action on the sickness. It is essential that the practitioner shall always bear in mind "that the pathogenic effect depends upon several conditions, such as the source of the microörganism, the dose, the mode and place of infection, and the nature of the inoculated soil." Our only design is thus to draw attention to the actual status of microphytic knowledge, so far as it concerns practical hygiene or practical treatment of disease, so that we may not too early assume as a basis what is not yet proven. This, at the same time, stimulates us to such constant inquiry as may be indicated, and as is hopeful for the future of both of these important sciences and arts.

OSTEOPLASTIC RESECTION OF THE FOOT (WLADIMIROFF-MIKULICZ).

By STEPHEN SMITH, M.D.,
of New York.

Two cases of the new operation of osteoplastic resection of the foot, as devised and practised by the surgeons mentioned in the title of this paper, have been reported in this country.[1] I am able to add another case, and as the operation seems to be one of great promise, I desire to add my own to the list, chiefly because of its failure:

The patient was aged twenty-one, of apparently good health. In November, 1885, he received a severe crushing injury to the heel of the right foot in a railway accident. The process of repair was very slow, and finally terminated in considerable retraction of the heel, but without a complete closure of the wound. He first came under observation April 13, 1886, when the foot presented the following appearance. The heel was drawn up and firmly flexed, the wound was but partially healed, and in his efforts to walk the wound rapidly enlarged, and he was compelled to take to his bed. He was urgent to have his leg amputated. As amputation, or resection, offered the only chance of securing a useful extremity, resection was proposed, and the osteoplastic operation of Mikulicz explained to him. He much preferred amputation, as that was the only operation which had been suggested to him by physicians whom he had consulted. He finally consented, though reluctantly, to resection, and it was accordingly performed on May 14, 1886.

The precise steps of the operation were nearly those detailed by Mikulicz in his paper.[2] Fig. 1, taken from his publication, will best illustrate the several stages of the procedure. Esmarch's elastic bandage was employed and antiseptic pre-

1 The Osteoplastic Resection of the Foot, as devised by Wladimiroff and Mikulicz. By Christian Fenger, M.D., Journal American Medical Association, January 29, 1887. Report of a case of Wladimiroff and Mikulicz Osteoplastic Resection of the Foot. By William Barton Hopkins, M.D., THE MEDICAL NEWS, December 3, 1887.

2 Archiv. für Klinische Chirurgie, 1881, Bd. 26, Heft 2, p. 494.

cautions taken. The patient was placed in the abdominal or prone position; an incision was commenced (*a*) just in front of the tuberosity of the scaphoid on the inner border of the foot, and carried down to the bone across the sole of the foot to a point behind the tuberosity of the fifth metatarsal bone (*b*); from the ends of this cut two incisions were carried upward and backward to the base of each malleolus; the ends of these incisions were

FIG. 1.

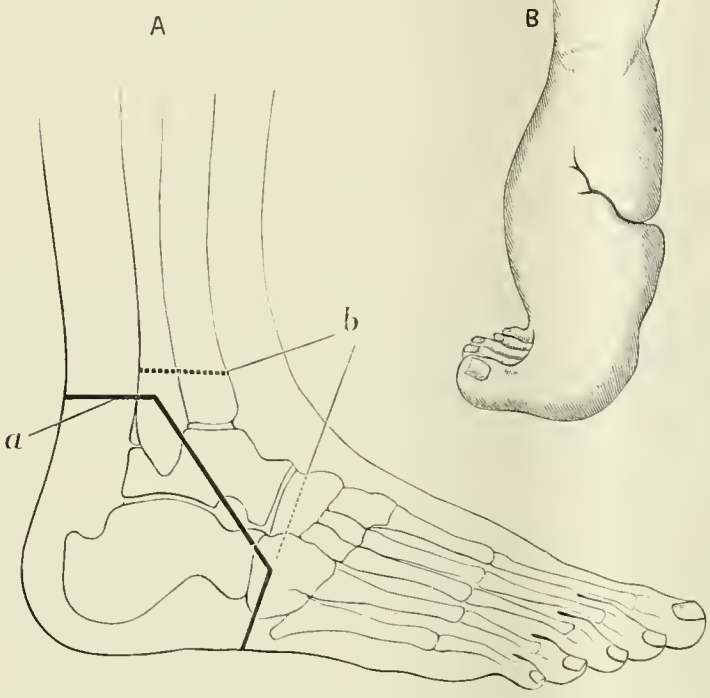


FIG. 2.

next united by an incision across the posterior surface of the leg (*a*) at that point; the foot was then carried in dorsal flexion and enucleation effected at the ankle-joint from behind forward, the astragalus and os calcis being dissected away from the soft parts in front. The malleoli and the articular surfaces of the tibia and fibula were next sawn off and then the articular surfaces of the scaphoid and cuboid bones were removed (*b*); the foot was then placed in a straight line with the leg, and the resected tarsal bones assumed a very easy and natural apposition to the divided ends of the tibia and fibula. Two silver wire sutures were inserted into the apposed bones, one at the external and the other at the internal angle. All of the opposing deeper structures of the wound were then united by catgut sutures; the divided tendo-Achillis being attached to fibrous tissues of the sole, and the cut tendons of other muscles united accurately. Two small drainage tubes were inserted, the usual antiseptic dressings applied, and the limb was finally fixed in proper position by the gypsum bandage.

The wound progressed admirably while he was under my care, there being no fever or suppuration. A slight slough of the old cicatrix occurred about a suture. It was very noticeable, however, that the patient was dissatisfied with the peculiar foot that he had, and this discontent was aggravated by his companions who visited him and ridiculed his appearance. He became very morbid and began to urge amputation through the leg. He was encouraged to await results, but in vain. Finally, when out of the hospital on leave he disappeared, and did not return for upward of eighteen months. He had meantime, had his leg amputated and returned to have the stump amputated. He has since succeeded in having his limb amputated twice.

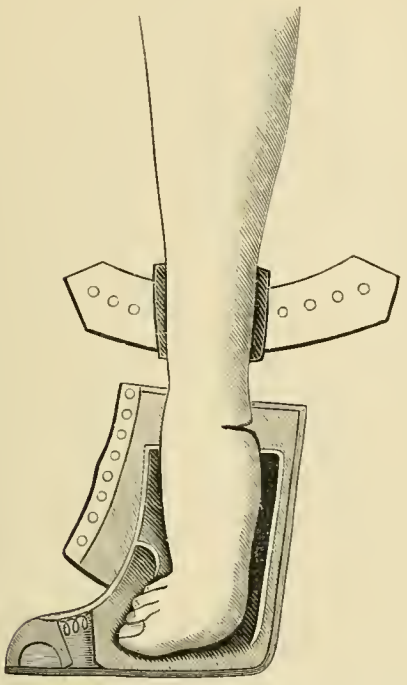
The failure of the operation was, therefore, due to the conduct of the patient rather than to the conditions of the wound.

As this patient passed from under my care before the completion of the cure, I did not have an opportunity to perfect the position of the toes. This has proved to be an important procedure. It will be seen (Fig. 2, B) that the toes are to be fixed in a position of extreme extension, or dorsal flexion. To effect this object Mikulicz divided the contracted tendons and forced the toes into the position indicated, and maintained them in this state by apparatus. Fenger states that after the wounds were healed in his case "The toes of the foot were fixed in semiflexion, and as they possessed but little mobility it became necessary to effect their complete dorsal flexion in order to enable the patient to walk on the balls of the first phalanges, . . . the patient was again anæsthetized and the toes were forcibly extended, *i. e.*, flexed on the dorsum of the foot. The flexor tendons, as well as the metatarso-phalangeal joints, had (from non-use) almost entirely lost their mobility; the skin covering the plantar surfaces of the joints was contracted. As a consequence of this condition the skin gave way beneath the first and second metatarso-phalangeal joints, and the first phalanx of the great toe was fractured just anterior to the joint." The toes were maintained in this position by a plaster cast. The wounds healed in about a month, and he was supplied with a boot designed by Mikulicz (Fig. 3). Subsequently the cicatrix on the plantar surface of the great toe opened, and was finally closed by a plastic operation.

Dr. Hopkins has so fully discussed the several questions relating to the operation, in a recent number of THE MEDICAL NEWS, that it remains for me only to express my strong convictions of its value, and the importance of familiarizing the surgeons of

this country with its details. It is true that it is applicable to but a limited number of cases, but in

Fig. 3.



those cases it is to be preferred to any other method. It is very easy of execution, very successful as regards the cure, and affords a most useful limb for progression.

574 Madison Avenue, New York.

A CASE OF ABDOMINAL SECTION.

A Contribution to the Subject of Exploratory Laparotomy.

By WILLIAM M. MASTIN, M.D.,
of Mobile, Ala.,
Fellow of the American Surgical Association, etc.

Laparotomy as a diagnostic measure, although receiving the unqualified advocacy of a few bold operators, has not attained a place among established surgical principles, but, on the contrary, remains a doubtful and unsettled procedure.

Such a position is, to say the least, surprising in this day of heroic surgery, where no part, it matters not how vital, of the complex human organism is beyond the reach of the knife; and especially when it is remembered that the operation of opening the abdominal cavity, its contents subjected to rude manipulation, and often extensive mutilation, is of daily, if not hourly, occurrence, and with formulated rules, definite and explicit, ready for our guidance in the necessities for and technique of its performance. But the fact is, that examples of exploratory abdominal section bear a very small ratio to the immense number of what, in contradistinction, may be designated as operative laparotomies, and to this paucity of clinical records may be ascribed measurably its condition of uncertainty.

The present status of abdominal surgery certainly demands more extended and exact knowledge concerning this important subject, and for its proper estimate it becomes essential that a careful and comprehensive analysis be made of numerous cases of *strictly* exploratory operations—that is, where the abdominal incision is not followed by additional surgical interference. Hence the report of clinical records is, of course, indispensable, since from this source alone can be secured the deductions requisite for determining the value and limit of its applicability; and, therefore, I offer this case as a small part of the needed mass of evidence.

It is true that operative laparotomy has solved already some of the questions which arise in this inquiry, but still it is necessary to examine the entire subject anew that we may ascertain just how far laparotomy can be employed in the diagnosis of obscure abdominal lesions, and chiefly, 1, the character and extent of danger in the operation *per se;* 2, to what class of cases it is applicable; 3, the necessity for large and small incisions, respectively, and their relative gravity; 4, the influence exerted over existing non-operable lesions of the contained viscera; 5, what effect may be anticipated upon coexistent diseases, both systemic and of distant regions.

The subjoined case, besides presenting many interesting features, furnishes very material aid in answering several of these queries; at least, in this instance, it demonstrates that the operation in itself is devoid of danger, although the abdomen was opened to the extent of seven inches, and the tumor cut into; that it afforded perfect command of the situation—permitting an accurate determination of the character, extent, and relations of the growth—which could have been gained by no other method; that, although the subject of grave pulmonary disease, this was not aggravated; but, on the other hand, the general condition of the patient was markedly improved; that the tumor itself was, apparently, beneficially influenced by the procedure, diminishing several inches in all directions, and remaining so five months after operation, when the last examination was made.

Case. *Large, solid, abdominal tumor (splenic); pulmonary tuberculosis; exploratory laparotomy; adhesions dense and extensive, with such vascularity as to prevent removal; improvement in systemic condition; diminution in size of growth; prompt recovery from operation.*—Lucy W., mulatto, æt. thirty-six, domestic; married, 7-para; medium stature, but frail, slender, and not strong. Family history good as far as known. She has always enjoyed moderate health, with no severe sickness except occasional malarial outbreaks, and two or three attacks of hæmoptysis within the past year. She considers herself well at present, although she is somewhat

enervated, has a little cough, and complains of loss of appetite.

About two years ago she consulted me relative to a movable lump in the left side, with the dimensions of a cocoanut, and which then had been noticed for a year or longer. It was painless, and only gave annoyance from its size and location. Examination showed it to be of the above description, occupying the left hypochondriac and lumbar regions, adherent apparently to the anterior abdominal wall for an area of two inches, and presenting the shape, consistency, and other characteristics of a hypertrophied spleen. In addition, miliary tuberculosis of the left lung was diagnosed. She was also several months advanced in pregnancy. Quinine, arsenic, etc., were prescribed, and she was advised to return at intervals.

She was not seen again until July 21, 1887, when she returned on account of the rapid enlargement of the tumor, which was double its former size. The late pregnancy seemed to have given an impetus to its development. The growth was slightly tender, and, at times, quite painful, which, together with its dragging weight and size, produced extreme discomfort. It extended from beneath the ribs on the left side vertically downward within the boundary of the left inguinal region, and transversely beyond the middle of the epigastric and umbilical spaces. More fixed in its position, and the area of attachment to the abdominal wall had extended with its increased dimensions. It had very much the feel and contour previously noted, with the exception of a prominent anterior lobe (the portion adherent to the abdomen), below which was a cleft in the lower edge, which appeared to correspond to the notch frequently met with in the spleen. Manipulation and pressure did not cause pain. The uterus was free and movable. She had lost flesh considerably, was weak and anæmic, and there was some increase in her cough, and a little expectoration. She was nursing her infant of thirteen months. Physical examination showed increase in pulmonary trouble, there being subclavicular dulness on both sides, especially the left, with prolonged, jerky, and harsh breath-sounds, lessened expansion, with depression. She had had a moderately large hemorrhage several days since. A rough estimate revealed a slight increase in white blood-cells. I advised weaning the child; ordered cod-liver oil, iron, etc., and suggested that an exploratory operation should be performed a few weeks later, and the removal of the tumor, if found practicable.

Sept. 12. General condition improved; size of growth increased, especially in the transverse direction. Its vertical length measured eleven inches; transverse length was thirteen and a quarter inches; and the circumference of the body around the most salient part of the growth equalled thirty-one and a half inches. Abdominal raphé displaced to the right. Numerous large veins course over the abdomen. Umbilicus pouting.

21st. Admitted to the Providence Infirmary, and placed on preparatory treatment.

26th, 1.30 P.M. Operation under ether. Strict antiseptic precautions, without the spray. A median incision, which it was necessary to lengthen to seven inches, disclosed a firm, solid, capsulated growth, so densely adherent on all sides as to be inseparabl blended with the attached structures, and exceedingly vascular, with large vessels distinctly visible beneath the capsule. The adhesion with the anterior abdominal wall was dissected loose to the extent of about one inch, in which the capsule was necessarily torn and the tumor superficially cut into, but the hemorrhage was so excessive as to render removal of the growth much beyond the limit of safety. For the control of the bleeding eight suture-ligatures of gut were required. Cavity washed out with a 1 : 8000 sublimate solution to remove blood, wound united with continuous catgut suture (peritoneum separately, then muscles, fascia, and skin), line of incision painted over with iodoform collodion, pads of sublimated gauze and cotton adjusted, over which was placed a wide flannel bandage. The operation, including dressing, lasted one hour, one-third of this time being employed in arresting hemorrhage. No shock, and reaction prompt. Six hours after operation the patient was resting nicely, without pain or uneasiness, with pulse 100 and temperature 99°. The subsequent progress of the case was uneventful, except, on the twelfth day, an attack of surgical mania of a night's duration. The highest temperature reached was 101°, pulse 130 and feeble, on the evening of the second day (September 27th), but under quinine in full doses, combined with digitalis, it gradually declined and fell to the normal on the eighth day. Liquid food (milk) was allowed on the second day, prior to which time water alone was given. Bowels moved by enema on sixth day.

Oct. 6 (eleventh day). Examined wound, which is dry and firmly united, the sutures coming away attached to the collodion pellicle, thus healing under a single dressing.

Patient up and walking about on the fourteenth day, and discharged on October 11th, two days later.

To the eye the abdomen appears decidedly reduced, which is confirmed by measurements, showing circumference of body around tumor to be twenty-eight inches; vertical diameter nine and a quarter inches; and transverse diameter ten inches.

Notwithstanding the confinement, etc., she has gained flesh, and professes to feel better than for a year.

Feb. 20, 1888. Reëxamination indicated no increase in growth—the dimensions remaining unchanged—and her general health is still improved. She is able to do light work, and experiences no inconvenience or discomfort from the tumor.

N. E. corner Joachim and Conti Sts.

FRACTURE OF THE LARYNX.

By M. HOWARD FUSSELL, M.D.,
of Manayunk, Pennsylvania.

A case of this rare injury came to my notice on July 9, 1887, under the following circumstances:

The patient, Edward E., æt. fifteen years, a catcher of a local baseball nine, was engaged in a game of ball with some of his fellows on a half holiday. He

was in his position behind the bat, two men were on bases, he wore his mask and stood close behind the batter. A ball was pitched and the batter made what is technically called a "foul tip"—that is, the ball was struck by the bat, but in such a position that it was driven backward with great velocity instead of forward.

The patient, as is stated, wore a mask, but just before the ball reached him, he threw his chin upward and the ball struck him squarely in front of the neck. He did not immediately fall, but threw off his mask and placed his hands to his neck. In a very short time he spat up considerable pure blood, and breathing began to become difficult. He walked several hundred yards and spoke several times, but at the end of half an hour he became unconscious and remained so until after tracheotomy was performed.

I saw him one hour after the accident. At that time he was unconscious, his face and hands deeply cyanosed, and bloody froth exuded from his mouth. His breathing was stridulous, much like that of a child in the last stages of membranous croup. On examining the front of the neck it was found flattened and considerable emphysema on both sides of the neck. On the least manipulation of the larynx fearful paroxysms of suffocation would come on, and crepitation between the alæ of the thyroid cartilage was plainly felt.

With the kind assistance of Drs. Griffith and Trites, of this place, tracheotomy was performed. The patient made such violent struggles on the trachea being touched that it was absolutely necessary to administer an anæsthetic. A very small amount of ether was administered carefully by Dr. Trites. As rapidly as possible a cut was made down to the trachea, the veins were much engorged and great care had to be exercised in order to prevent laceration of the swollen vessels. In a few minutes the trachea was reached. Just before I was able to open the trachea respiration ceased completely. I hooked up the trachea with a tenaculum, made an incision through three rings and slipped in the tracheotomy tube. Still the boy did not breathe. His heart was beating, though feebly. I immediately performed artificial respiration after the Silvester method. A large amount of bloody froth issued from the tracheotomy tube. After several artificial movements of the chest wall, the patient took one long inspiration and again stopped. Artificial movements were again performed, and finally, after an almost inconceivable amount of bloody froth was pumped out, the boy breathed regularly and his heart-beat rapidly became stronger.

After he had been breathing for about fifteen minutes, the tube, which was short, slipped from the trachea. It was immediately replaced only to slip again after a few minutes. It was again replaced, but before replacing it a stitch was taken through the edge of the trachea. The tube was then replaced and the thread connecting with the trachea tied around the shoulder of the tube. This was necessary because the tube was a short one, and the only one in the place. If the trachea was not drawn up toward the tube it continually slipped. From that time on the patient breathed more and more naturally. In half an hour he opened his eyes and answered questions by nodding his head.

The trachea was opened about 5 P.M. At 8 P.M. the patient was doing excellently. I retired from the room for about fifteen minutes. When I returned I found a deepening cyanosis, the tube was in place and bloody froth was again exuded with each act of respiration. The lungs were again becoming congested. The pulse was 90, full and strong. I turned to get my hypodermatic syringe; before I reached the table respiration stopped abruptly. I quickly felt for the pulse but it was absent. No action of the heart could be heard or felt.

By an unfortunate combination of circumstances a post mortem was not secured. As stated above, however, crepitation between the alæ of the thyroid was plainly felt. When I removed the tube after death I examined the trachea as carefully as possible and found it almost entirely occluded above the incision. The occlusion was apparently due to the thyroid being pushed backward. The tube was in place and free from obstruction.

So far as I am able to discover, this is the seventieth recorded case of fracture of the larynx and the fifty-fourth death.

The case is unique in its cause and in the mode of death.

When the peculiar risk to a ball-catcher is taken into consideration it seems strange that such an accident should not have occurred before.

The recorded deaths, which have occurred suddenly, have all been before tracheotomy, and generally due to increasing dyspnœa from œdema. Atlee reports a case where death occurred suddenly from general emphysema.

In my case the breathing was normal just previous to death, save a slight congestion of the lungs due to the remains of the first severe congestion. The ingress and egress of air were not impeded.

The character of the pulse less than a minute before death being so excellent, and the sudden stoppage of the heart would suggest as the cause of death a sudden pressure on the pneumogastrics in the neck.

In the absence of a post mortem it is, of course, impossible to state the condition of the surroundings of these nerves, but the swelling of the neck progressively increased from the time the patient was first seen.

It is scarcely probable that administration of the ether (which was necessary owing to the struggles of the patient and the lack of intelligent assistants) could have had any part in causing the fatal result, three hours having elapsed between the administration and death. There was no organic disease of the heart shown by physical examination.

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TREATMENT OF CHRONIC BRONCHITIS IN CHILDREN.

BY THOMAS J. MAYS, M.D.,
PROFESSOR OF DISEASES OF THE CHEST IN THE PHILADELPHIA POLYCLINIC.

A GOOD deal is said in our text-books on the treatment of acute bronchitis in the child and in the adult, but there are cases constantly occurring in the practice of every physician which do not fall under the description of the acute form of this disease, and which pursue rather a chronic or subacute course. A child from two to ten years old, and even younger, is brought before you, who has had a cough for some time, which is accompanied by yellow expectoration in the morning but is of a lighter color during the day. The child is able to be about, but its respirations are accelerated, and are short and shallow; the pulse is quickened; there is occasionally a flush in the face, probably a slight rise in temperature; night sweats; loss of flesh; dyspnœa; poor appetite; coated tongue; and the presence of general debility. On inquiry you will find that some months previously this child contracted "a cold," or had an attack of measles, or whooping-cough, from which it made an imperfect recovery and consequently has not felt well since.

Palpation of the chest probably reveals a fremitus over the central portion of the chest, both anteriorly and posteriorly; there is no dulness, but rather increased percussion resonance, and a roughened, blowing respiration is heard over the whole chest which may be accompanied by rhonchi, mucous and sibilant râles, audible especially in the morning after rising. Coughing will remove the râles, but not the blowing breathing.

Quite an extended experience in the treatment of these cases teaches us that persistent counter-irritation is of the first consideration. If there is much impediment to the ingress and egress of air, or, in other words, if there is much dyspnœa, the child is at once placed in bed, the chest is enveloped with a hot flaxseed meal poultice (covered well with oiled muslin) which must be changed every three hours. In most cases, however, it is not necessary to order the child to bed, and counter-irritation is produced with a mild croton oil liniment. Croton oil and sweet oil, well mixed in the proportion of one to two parts of the former to six of the latter, is well rubbed into the skin of the child's chest—in front, under the arms, and between the shoulder-blades, not with a flannel or cloth, but with the mother's or nurse's fingers, twice a day, and then the chest is well covered with a layer of cotton-wool. It is important that as much as ten or fifteen minutes be spent in rubbing the liniment well into the skin, after which the hands must be thoroughly washed. In the course of four or five hours a red blush of the skin will appear, ending in fine, yellow-pointed pustules. Simultaneous with this eruption the cough becomes easier, the expectoration more free, the dyspnœa less—in fact the most remarkable change will be brought about in the little patient.

Our attention was first called to the usefulness of this application by Dr. Park in a short contribution to the London *Practitioner* for March, 1882 (p. 170), and although he principally recommends it in acute bronchitis, we can say that we have found it as useful in the form of bronchitis here described as he did in the acute form of the disease. Indeed, we may add that we have also given it a fair trial in acute catarrhal affections of the chest in children and never had any reason to feel disappointed with its action.

The internal treatment must be directed toward a stimulation of the bronchial mucous membrane, and toward a recovery of the appetite. The former will be attained in a great measure by the following combination:

R.—Ammoniæ murias. . . . ℥j.
Ex. euphorbia pil. fld.,
Tinct. digitalis . . . . āā fl. ℥iij.
Atropiæ sulph. . . . . gr. $\frac{1}{70}$.
Chloroformi . . . . gtt. xij.
Syr. tolu,
Syr. picis liquid. . . . āā q. s. fl. ℥j.
Aquæ . . . ad. q. s. fl. ℥iv. M.
Sig. One teaspoonful every three hours.

For the purpose of aiding digestion, and as a general tonic the following will be found useful:

R.—Acid. phosphorici (dil.),
Acid. nitromuriatic. (dil.),
Acid. sulphuric. aromat.,
Tinct. ferri chloridi . . āā fl. ℥ss. M.
Sig. Thirty drops in sweetened water after each meal three times a day.

The diet should be exceedingly liberal, although no food must be allowed which is likely to disagree. Our main reliance must be placed on rich milk, soup, oatmeal, beef, mutton and other kinds of nutritious food. At no time during the treatment is it necessary to confine the child within doors during pleasant weather. Indeed, out-door exercises should be encouraged as much as possible.

MEDICAL PROGRESS.

Oil of Gaultheria and Salol in Rheumatism.—DERCUM reports his experience in the use of these drugs as follows in the *Journal of Nervous and Mental Diseases* for January, 1888:

Regarding the dose of oil of gaultheria, I have been in the habit of prescribing ten or twenty minims of the oil to be taken at intervals of three or four hours. This has, on the average, proved sufficient to produce marked impression within twenty-four or forty-eight hours, as evidenced by the subsidence of pain and ringing in the ears.

Occasionally I have given it in larger doses and at shorter intervals. In one instance, a case of muscular rheumatism in which the pain was obdurate and excruciating, I gave a half drachm every two hours, with the result of a rapid, absolute, and permanent relief. In this patient, five or six doses of the drug were taken before marked symptoms of gastric disturbance became evident. The fifth or sixth dose—I do not remember exactly which—was rejected by the stomach. The patient's pulse became rapid, the tongue coated, and his nausea was extreme, and to judge by the description given by himself, "cinchonism" was excessive. He described the ringing in the ears as frightful. However, he reacted quickly, and although he had been sickened by the oil he was cured of his pain. On the following day, in fear that his pain might return, he of his own accord resumed the drug in smaller doses.

Under circumstances in which the patient ceases to be tolerant of the drug, it has been my habit of late to fall back on salol.

In my own experience, salol has special virtues of special application. It is an almost tasteless, fatty, insoluble powder, which is as bland and unirritating to the mucous membrane of the stomach as so much powdered paraffine would be. It is apparently not acted upon by the gastric juice, but depends for its digestion upon the pancreas. At least it is decomposed in the small intestine into salicylic and carbolic acids. This change likewise takes place when salol is mixed with pancreatic secretion or with pancreatic tissue outside of the body.

As far then as the stomach is concerned, it is innocuous and inert, and it frequently proves a grateful relief to that viscus, especially when the oil of gaultheria or the salicylate of sodium has been given for some time. Judging from my own experience, it is slower in producing its physiological action than the other salicylates. The effect is not as pronounced and much less prompt. That it is, however, efficient in the same class of cases as the oil of gaultheria there can be no doubt. I generally prescribe fifteen or twenty grains to be taken every three or four hours. The effect is gradually produced, and is manifested in large doses by more or less "cinchonism." Curiously enough, I have noticed that the ringing in the ears is less, but the deafness more marked, than from the gaultheria. Occasionally patients will mention the darkening of the urine due to the presence of carbolic acid.

Now and then patients object to the drug on account of its greasy feel and greasy taste, and sometimes of their own accord ask to be placed back on the gaultheria. Occasionally, of course, it is well to alternate the gaultheria, instead of with salol, with the sodium salicylate.

Further Testimony to the Value of Creasote for Phthisis.—Von Brunn, in the *Berliner klinische Wochenschrift* of February 20, 1888, reports that in the past eight years he has treated 1700 cases of pulmonary phthisis with creasote, with good results. His cases were not only the ambulatory patients in whom there was no marked rise of temperature, but also cases in which tuberculosis was making active progress. The best results were obtained in acute cases in which the temperature became nearly stationary after a period of fever, and in which the lesion was generally catarrhal and unilateral. Regarding dosage, von Brunn considers it an error to give less than six or seven minims of creasote daily; he has not exceeded seven minims daily, and considers it essential to continue this treatment for at least several months. He believes with Sommerbrodt that the more creasote which can be borne the better. The creasote wine originally prescribed by Bouchard was found to be the best form for administration:

Creasote	13 parts.
Tr. gentian.	30 parts.
Spts. vini rect.	250 parts.
Vin. Tokaya, or Malaga	ad. 1000 parts.—M.

Sig.—Teaspoonful well diluted with water three times daily.

Tuberculous Laryngitis Cured by Lactic Acid and Iodoform.—Luc reports, in *L'Union Médicale* of February 16, 1888, the case of a young woman who was the subject of pulmonary tuberculosis, and in addition tuberculosis of the larynx. After anæsthetizing the larynx with a solution of cocaine, 1 to 5, he destroyed the granulations most prominent with the electric cautery. The subsequent treatment was the application of lactic acid fifty per cent., and powdered iodoform. The laryngeal lesions healed; the pulmonary condition was uninfluenced.

Iron in Purpura.—A chemical examination of the blood, bile, pleuritic effusion, brain, liver, spleen, marrow of the bones, kidney, lungs, and lymphatic glands in a case of purpura has been made by Dr. Zaleski, and published in the *Russian Military Medical Gazette*, his object being to determine whether this disease, which is called by him "morbus maculosus Werlhofii," is associated with any increase in the quantity of iron in the body, as some results obtained by Hindenlang and Kunkel appear to indicate. Dr. Zaleski found that, so far from this being the case, the iron was diminished by something like a half. He found no inorganic iron compounds like those described by Kunkel, but most of it existed in the form of an albuminate; some, however, was found in the pigment spots in very stable compounds similar to hæmoglobin. More iron appeared to exist in the gray than in the white substance of the brain.—*Lancet*, Feb. 18, 1888.

Formulæ for the Use of Hydrate of Amylen.—Fischer is quoted by *L'Abeille Médicale* of February 20, 1888, as using the following formulæ:

Amylen hydrat.	grs. 100.
Aquæ destill.	ʒ 3½.
Ext. glycyrrhizæ	ʒ 2½.

Half to be taken on retiring.

With morphia:

Amylen hydrat.	grs. 90.
Morph. hydrochlor.	gr. ¼.
Aquæ destillat.	ʒ 15.
Ext. glycyrrhizæ	ʒ 2½.

Half to be taken on retiring.

Per rectum:

Amylen hydrat.	grs. 75.
Aquæ destill.	ʒ 12½.
Mucilag. gummi Arab.	ʒ 5.

And with morphia:

Amylen hydrat.	grs. 60.
Morphiæ hydrochlorat.	gr. ¼.
Aquæ destillat.	ʒ 12½.
Mucilag. gummi Arab.	ʒ 5.

Antiseptic Midwifery in the Boston Lying-in Hospital.—In a recent discussion upon the subject of antiseptic midwifery, Dr. William L. Richardson, in closing the discussion, said he had been fourteen years at the head of the Boston Lying-in Hospital, where septicæmia had been so prevalent that they had repeatedly been compelled to close the hospital. Since the introduction and adoption of the antiseptic method in 1885, they have had over nine hundred confinements, without a death from septicæmia. With regard to diagnosis, he thinks peritonitis a comparatively rare complication of septicæmia, but regards a temperature of more than 100° F. as evidence of it. Milk fever, swelled legs, mammary abscess, sore nipples, pneumonia, are all evidences of it. Under the antiseptic method, women pass through the puerperal period without any rise of temperature whatever, and torn perineums unite by first intention without the slightest difficulty.

He considers the physician responsible if a death occur from any of the above enumerated causes. In his opinion, the question is bound to assume a medico-legal aspect, and it will go hard with a physician who loses a patient from any such cause, unless he can succeed in shifting the responsibility on the nurse. With regard to technique, it makes no difference whether pads or towels are used, or whether the pads are used wet or dry. Garrigues uses them wet, but in Boston they are used dry, because the wet pad, if long continued, may cause eczema, and, possibly, mercurial poisoning. He has abandoned the post-partum douche, except in cases where it is positively indicated,

There is little danger of absorption from the endometrium, but much more danger that the mercurial will be absorbed in the folds and small rents so constantly present in the vagina. Digital examinations may be practised *ad libitum* previous to delivery, provided the examining finger be washed in the mercurial before introduction.—*Boston Medical and Surgical Journal*, March 1, 1888.

An Ice-bag over the Spleen in Typhoid Fever.—Weichardt has employed an ice-bag wrapped in flannel, laid over the spleen in typhoid fever, and thinks that a reduction of temperature and a hindrance in the development of bacilli resulted.—*Präger medicinische Wochenschrift*, January 11, 1888.

A Sugar Test.—Mr. Marson recommends sulphate of iron and caustic potash as a test for the presence of sugar in urine. One and a half grains of the pure salt are dissolved in about 120 minims of urine by the aid of warmth, then five grains of caustic potash added and boiled. If sugar be present, a dark green precipitate will form, the superjacent liquid being reddish-brown or black, according to the amount of sugar. If no sugar be present, the precipitate is greenish-brown in color, and the liquid is colorless.—*Medical Press*, February 15, 1888.

Aseptic Leaden Bullets.—Rolland, by experiments upon animals, has found that, so far as the eye is concerned, it is neither the form nor the chemical composition of the grains of lead, but the asepticity that accounts for their not producing panophthalmitis after penetrating the vitreous. This asepticity is due to their disinfection by the deflagration of the gunpowder.

Secondly, when leaden pellets are not sterilized immediately before entering the eye they produce panophthalmitis with the same frequency as other metallic bodies. If copper, iron, or brass fragments are similarly sterilized by gunpowder, they are as harmless as lead shot in producing panophthalmitis.—*Medical Chronicle*, Feb. 1888.

Formulæ for the Treatment of Chronic Coryza.—Mackenzie prescribes a nasal douche containing the following powder dissolved in half a glass of warm water:

Sodii bicarbon.,	
Sodii biborat.,	
Sodii chlorat.	āā grs. 6.
Sacchar. alb.	grs. 15.

The temperature of the solution should be 98.6° F. The fluid may be snuffed up the nostrils, or injected by a small syringe.

Moure prescribes an antiseptic douche of

Acid. carbol.	parts 20.
Glycerin.	parts 100.
Alcohol	parts 50.
Aquæ	parts 350.

Of which a teaspoonful or dessertspoonful should be added to a pint of warm water.—*L'Abeille Médicale*, February 20, 1888.

Spontaneous Rupture of the Rectum.—Dr. Quénu, in his clinical lesson at the Beaujon Hospital, treated of spontaneous rupture of the rectum, and related in detail the following case, which is not wanting in interest. A woman, æt. sixty, of a very weak constitution, had suffered for the last six years from a prolapsus of the rectum, which, however, she reduced with facility. Being habitually constipated, she made a free use of purgatives, and frequently passed blood. For the last six weeks she seemed to suffer more than usual, and kept her bed. The day of the accident she made great efforts in defecation, and suddenly she felt something come down, and great pain followed, with a considerable loss of blood. A doctor who was called in ordered her to be sent to the hospital, and when M. Quénu arrived he found the woman pale and cold, and on raising the chemise a portion of the intestine a yard in length was discovered black and shrivelled. Introducing the finger into the rectum, a large rent by which the intestine escaped was felt in the anterior wall. Under chloroform, the abdominal wall was incised in the median line, and nothing but blood was discovered. The herniated intestine was removed close to the anus, but all attempts to suture the rent were useless. Iodoform dressing completed the operation. The patient succumbed on the following day. The autopsy revealed a rent of an inch and a half in length, and a considerable amount of varicose veins, which M. Quénu considered pathogenic.—*Medical Press*, February 8, 1888.

The Toxic Principles of Snake Venoms.—Vincent Richards writes, in the *Indian Medical Gazette* for December, 1887, in support of the conclusions reached by Weir Mitchell and Reichert, that the active principles of snake venoms are proteids, and not alkaloids. He cites the conclusions of Norris-Wolfenden and Gibbs on this point, which agree fully with those of Mitchell. Wishing to secure, if possible, a consensus of opinion from those

who have studied the subject, he addressed a communication to Gautier, enclosed a specimen of cobra venom, and asked him to report his studies in the light of recent investigations. The conclusions which Gautier has reported from his latest experiments are at variance with those of all other authorities, and Richards considers them based upon the examination of too small a quantity of venom.

Richards, in agreement with Mitchell and others mentioned, considers that the action of alkalies and of heat upon serpent venom confirms the view that these poisons are not alkaloids, but proteids.

Nitro-glycerine in Epilepsy.—Osler, in the *Journal of Nervous and Mental Diseases* for January, 1888, reports his use of nitro-glycerine for epilepsy, as follows:

I have notes of nineteen cases in which the nitro-glycerine was tried for periods ranging from six weeks to six months. In thirteen of these cases there were severe epileptic seizures, six were instances of *petit mal* with occasional convulsions. Briefly stated, in nine cases there was improvement, as shown in the reduction of the frequency of the attacks. Of these, six were cases of major epilepsy; and three, instances of petit mal. The benefit was usually manifested within a week or ten days. Thus case 16, a man aged twenty-seven, had had fits for ten years; and when seen, April 5th, had as many as two or three a day. He had taken potassium bromide largely, and at one time with great benefit. Antifebrin was given in gr. viij, two or three times a day, but seemed to be without any influence. On June 1st, nitro-glycerine was given, ♏v of the one per cent. solution, three times a day. Within a week the attacks were greatly lessened, and in the second week after beginning he had only two attacks. He continued to take it all through the summer, getting up to ♏viij doses, t. i. d. He does not think that anything he has ever taken reduced the fits so much. On November 11th, he stated that he had stopped it for a month; the attacks have recurred less frequently, and he had been able to be at work.

In some of the cases in which the betterment was most striking at first, the remedy seemed to lose its influence, and after a month or two had to be abandoned. I cannot say that in any one of the nine cases the improvement has been more than temporary. In two of the cases of petit mal the attacks were greatly reduced, and one patient remained free for two months, but I learn by letter that the attacks have returned. Altogether my experience has not been very encouraging. We may say that, in a limited number of cases, when the bromides have failed or are beginning to lose efficacy, nitro-glycerine may be used with advantage. I have also used the nitrite of sodium in a few cases with indifferent success.

Albuminuria and Renal Lesions Following the Injection of Albumen.—Snyers, in *L'Union Médicale* of February 14, 1888, reports the results of the injection of albumen in animals as follows:

The albuminuric dyscrasia caused by injections of white of egg, ceases in twenty-four hours after injection; white of egg being useless as such in the organism is eliminated by the kidneys without producing a lesion of those organs. After thirty days' continued injections histological examination fails to reveal lesions of the kidneys, from which it is concluded that injection of albumen fails to produce even physiological albuminuria.

Salicylic Collodion.—Bivert, an apothecary of St. Petersburg, finds the following a successful formula for preparing salicylic collodion:

R.—Collodii	. . . . .	parts 100.
Acid. salicylic. crystall.	. .	parts 10.
Terebinth. venet.	. . .	part 1.
Chlorophyli	. . . .	q. s.

This collodion is especially useful as a remedy for corns.—*London Recorder*, Jan. 20, 1888.

Death by Suffocation in Phlegmonous Tonsillitis.—Dr. Way reports, in the *Medical Record* of February 25, 1888, a case in which he had incised the tonsils for phlegmonous inflammation, with temporary relief.

On the following morning I visited him, and found the tonsils swollen about as badly as on the previous afternoon, prior to my incising them. He reported himself as having been able to sleep some during the night, though not so well as he should have liked. His temperature was 102.6° F.; pulse 96; and general condition as good as usual in similar attacks. I applied iodo-tannin to the inflamed glands, and also an emollient poultice to the neck over the situation of the tonsils. The quinia and gargles were also continued, and the patient was advised to remain in bed. At 10.30 P.M., I visited him again, and found him in about the same condition as in the morning. His pulse was 94; temperature 102°; he had been able to take some fluid nourishment during the day, and said he believed he would be able to get out on the morrow, if he could only get some sleep.

His throat presented much the same appearance as in the morning. I again administered the hypodermatic of morphia (gr. $\frac{1}{8}$) and atropia ($\frac{1}{120}$), as on the previous evening, and a few minutes later retired to a room on the same floor of the building, two doors removed from the patient. An hour and a quarter later I was hastily summoned to attend my patient by a gentleman who was occupying the same apartment with him. His tone betokened alarm, and without dressing, or waiting to question him, I hurriedly repaired to his room. My patient was dead! Intravenous and intracardiac injections of ammonia, with artificial respiration practised more than half an hour, failed to elicit at any time the slightest evidences of vitality. Examination of the body of the deceased revealed the fact that the upper pharyngeal region and the larynx, especially the latter, contained a large quantity of pus and broken-down tonsillar tissue, derived from the rupture of the right tonsil. There were no evidences of cardiac or renal disease; *per contra*, the deceased had always, saving the frequent attacks of tonsillitis, enjoyed excellent health.

From his companion I learned that within fifteen or twenty minutes subsequent to my departure he had sunk into a peaceful slumber, breathing quietly and without any difficulty for almost an hour. He then seemed to stop breathing for a moment, but soon made one or two ineffectual gasps for breath, which so alarmed his companion that he rushed out of the room and down the hall to my room. In not more than one minute from the first respiratory difficulty I was at the bedside, but the life-principle was then entirely extinct.

Theine in Pain.—In the *Journal of Nervous and Mental Diseases* for January, 1888, MAYS reports the following formula for the use of theine in pain in various regions of the body:

R.—Theinæ,
Sodæ benzoat. . . . āā ʒj.
Sodæ chloridi . . . . gr. viij.
Aquæ . . . . . f ʒj.—M.

Sig.—For hypodermatic use. Six minims equal one-half a grain of theine.

Administered to a properly adapted case, theine is surprisingly prompt in its analgesic action. He has on numerous occasions observed patients with lumbago, who were too stiff to bend their bodies, or had almost too much pain in their back to rise from a chair or sit down after they were up, comfortably straighten their bodies in less than five minutes after its introduction. When not so prompt, it is probably due to the small size of the dose, and where one-half of a grain does not produce the desired results, it should be increased to one, or even two grains.

When injected, it gives rise at first to some burning, but it does not produce any prolonged irritation or inflammation. The burning is soon replaced by an area of anæsthesia.

The Treatment of Lead Colic by Rectal Injections of Ether.—TORRE, in the *Bulletin Général de Thérapeutique* of February 15, 1888, reports that he has given ether per rectum for the spasms of lead colic with good results. He employed a flask containing about a drachm and a half of ether, to which was attached a rubber tube of convenient length and terminated by the canula of an irrigator. The injection of fifteen to twenty minims of ether was often sufficient to mitigate a severe spasm when enemata of castor oil and soapsuds were given to relieve constipation.

A Positive Test of Death.—MASCHKA has advanced the theory that a burn upon the surface of a cadaver is not followed by the formation of blebs, as upon the living body. He advises the actual cautery as an infallible test in cases of suspected death.—*Präger medicinische Wochenschrift*, January 18, 1888.

A Tonic Pill, for Use in Phthisis.—In the *Therapeutic Gazette* of February 15, 1888, BRUEN gives the following formula:

R.—Iodoformi . . . . . gr. ½.
Acid. arseniosi . . . . gr. $\frac{1}{10}$ to $\frac{1}{60}$.
Pil. ferri carb. . . . . gr. j.
Ext. cannabis ind. . . . gr. $\frac{1}{5}$.
Quiniæ sulph. . . . . gr. j.—M.

Diet in "Large White Kidney."—The *Medical Press*, of February 15, 1888 writes that the condition known as the "large white kidney," a malady of tolerably common occurrence, is due in a large number of cases to the chronic irritation set up in the eliminatory organs by the excretion of incompletely oxidized nitrogenous matter resulting either from excess of nitrogenous material ingested or from hepatic or other visceral disease. In either case it is important to bear in mind that the object to have in view is to reduce, or at any rate not to augment, the quantity of these partially oxidized products. For this reason albuminuric patients should avoid foods containing an abundance of these extractives. Beef tea, beef extracts, and the like are little less than poison to them, as they infallibly accentuate the irritation and aggravate its results. It has been found that the systematic subcutaneous injection of these substances in guinea-pigs gave rise to the characteristic renal lesions with the usual train of symptoms, the severity of which was in direct proportion with the quantities injected.

The Treatment of Follicular Enteritis.—WIDERHOFFER, in addition to a strict limitation of diet in these cases, employs enemata of mucilaginous fluids containing small quantities of opium. A child of six months would receive an injection of twelve and a half drachms of fluid, with one drop of tinct. opii.

Intestinal lavage is usually performed with about one quart of a solution of salicylic acid, 3 to 1000, which is considered preferable to carbolic acid. A solution of chlorate of potassium is also useful. In the more advanced stages of the disease astringents—alum, rhatany, or tannin—may be employed. Guarana, in doses of three-quarters to three grains in five or six daily doses, may be given by the mouth as follows:

Guaranæ pulv. . . . . gr. ¾ to 3.
Sacchr. pulv. . . . . q. s.

Tannate of quinia, in doses of three-quarters to two and a half grains, has been used with excellent results. Widerhoffer urges great caution in convalescence, as prolonged digestive troubles follow these patients.—*Revue Gén. de Clin. et de Thér.*, February 16, 1888.

Fatal Somnambulism.—The *Boston Medical and Surgical Journal* of February 23, 1888, reports that on the night of the 15th inst., a gentleman aged sixty-eight years, residing at Oak Knoll, Danvers, Mass., left his bed while asleep, and walked forth from his house clad only in his night-shirt. He was found the next morning frozen to death, about a quarter of a mile from his house. The thermometer marked from eight to ten degrees below zero that night. The same man, who had been afflicted with somnambulism for some years, is said to have nearly perished in a similar way once before. He went from his house one cold night, but was observed and brought back, having, however, to suffer the amputation of a finger that was frozen.

Chloride of Methyl in Neuralgia.—DR. ABRAHAM JACOBI has used chloride of methyl in five cases of trigeminal neuralgia; two were old cases, three recent ones. In one case there was relief and cure after the first application. In the two old cases relief followed two applications. One case was that of hyperæsthesia along the whole course of the trigeminal; the first application gave relief, and at a recent date a letter from the patient states that there has been no return of the trouble. In a case of neuralgia with pain extending through from breast to scapula, instantaneous relief was obtained, but the pain recurred; in this patient every remedy had been fruitlessly tried, except morphine; the latter alone had afforded relief.

As to pigmentation of the part sprayed by the methyl,

Dr. Jacobi has had only one case that can be called serious: the discoloration seems, in this instance, to be permanent, but he does not regard this feature as a sufficient objection to forbid the use of the remedy. He further says, "I can imagine nothing more easily manipulated and of more instantaneous action than the methyl spray. It has not the continuous pumping of the other sprays." He had not been able to carry his experiments as far as he desired for the reason that his supply of the methyl had been limited.

The abstract given above has been taken from the discussion of a paper by Dr. Thallon, in the *Brooklyn Medical Journal* for January, 1888.

The Treatment of Furuncles by Intestinal Antisepsis.—Bouchard, in *L'Union Médicale*, of January 21, 1888, reports good results in general furunculosis from

Naphthol (β)
Bismuth. salicylat.
Magnesiæ, ... āā gr. 5.

repeated four times daily.

A Hairpin in the Peritoneum.—Dr. Freund, of Strasburg, describes in the *Centralblatt für Gynäkologie* of December 17, 1887, a case where a hairpin was found in the peritoneal cavity in the course of an exploratory operation for suspected disease of the uterine appendages. The patient was a sickly and emaciated woman, aged forty-one, who had symptoms of tertiary syphilis. Her periods had been regular till about four months before she first applied for hospital relief; then they did not appear for two months; at the end of that period metrorrhagia set in, with the discharge of small shreds, and spasmodic pains in the sacral region and the hypogastrium. The discharge of blood continued for five weeks, then epileptiform fits occurred. The uterus was found anteverted, and a small oval tumor lay to its left side, connected by a tough cord with the pelvic wall. Tubal pregnancy was suspected. On March 2, 1887, an exploratory incision was made; the adhesions, which bled freely, had to be broken down, and a cyst of the left tube, "the size of an apple," was removed. It was universally adherent to surrounding structures; and, in securing some bleeding vessels to the great omentum, a piece of hairpin, an inch long, and consisting of part of the two shanks pressed close together just below their point of union, was discovered and extracted. A drainage-tube was left for twenty hours in the wound. The patient did well for a fortnight, then the stump of the tubal pedicle suppurated, and the pus which escaped contained ligature-threads. The first period after operation was attended with attacks of convulsions, which lasted eight days; but the second was only represented by the molimen without show, and by slight convulsive attacks. Ten days later a hard substance was detached, on vaginal examination, to the left of the cervix. The woman was in good health when last seen by Dr. Freund; but there were slight convulsions at every menstrual period. Should a portion of the hairpin yet remain in the pelvis, the persistence of the neurosis is readily comprehensible; should the hard body be simply an inflammatory deposit, the persistence of the symptoms would be a feature already observed in other cases, where self-evident causes of nerve irritation have been removed, the neurotic condition remaining for a long time after their removal. It appears that in this case the shanks of the hairpin had been pressed together, and introduced into the uterus for the destruction of an imaginary fœtus, amenorrhœa having followed cohabitation. The pin had broken, found its way into the left tube, set up salpingitis, perforated the tube, and reached the omentum. Dr. Freund shows, on carefully considered evidence, that the prevalent theory that hairpins are introduced into the genito-urinary tract, either in the belief that the practice may procure abortion, or for another repulsive purpose, is perfectly correct.—*British Medical Journal*, February 18, 1888.

Formulæ for the Use of Drugs by Atomization in Phthisis.—Dr. Bruen, in the *Therapeutic Gazette* of February 15, 1888, reports his method of treatment as follows:

The apparatus which is most satisfactory to me is the vaporizer of Codman & Shurtleff, of Boston. This firm supplies an atomizing apparatus placed in a flask, and the atomizing force is supplied from a gasometer capable of retaining air at the pressure of twenty-five pounds. The compressed air can be supplied by other forms of apparatus, as the Burgess apparatus; the essential principle being to use a dry vapor, which must be inhaled under a certain pressure, say from fifteen to twenty-five pounds. I have found great satisfaction in using one of three formulæ:

a. ℞.—Carbolic acid. . . . gr. xvj.
Compd. tinct. iodine . . ♏ xvj.
Glycerin . . . . ʒ ss.
Water . . . . ʒ ij.—M.

b. ℞.—Terebene . . . . ℥ss.
Fluid cosmoline . . . ʒj.—M.

c. ℞.—Paregoric . . . . ʒiij.
Ethyl iodide . . . . ℥ss.
Chloroform . . . . ʒj.
Fluid cosmoline . . . ℥ss.—M.

The first of these solutions seems to be most beneficial in the form of bronchial and lobular desquamative catarrh, combined with softening and apex cavity. Frequently in such cases the temperature can be promptly reduced within an hour after inhalation. When the treatment has been followed steadily, the effect is to modify the processes of bronchial catarrh, suppuration, and softening, and to lessen cough and expectoration, to diminish night-sweats, and most decidedly to influence the temperature. The creasote vapor sometimes produces a sensation of dryness, or irritation of the bronchial mucous membrane, which may necessitate its temporary suspension.

When the cough is very dry and troublesome the vapor of the iodide of ethyl is soothing, or I have found that the following formula, used on the Yeo inhaler, is very efficient:

℞.—Ethyl. iodidi . . . . . ʒ iv.
Chloroformi . . . . . ʒ j.
Tr. opii camph. . . . . ʒ iij.—M.

Sig.—Ten to twenty drops every half-hour for one or two hours several times daily.

I have used the foregoing formula sufficiently often to enable me to speak with precision as to its value, but I have also used the same apparatus in a number of cases

with other combinations, such as fir wood oil, one part, and fluid cosmoline, two parts; or the following:

R.—Tr. iodinii comp. . . . . ♏ vij.
Tr. conii . . . . . ♏xv.
Glycerinæ . . . . . ℥iv.
Aq. . . . . ℥iv.—M.
Use in vaporizer.

R. Acid. carbolic. . . . . ℈ j–℥ vij.
Sodæ biborat. . . . . ℥ ij.
Glycerinæ . . . . . ℈ ss.
Aq. dest. . . . . ad ℥ iv.—M.
Filter and use in vaporizer.

The Antiseptic Value of Naphthol.—MAXIMOVITCH, in recent experiments, found that alpha-naphthol is less toxic than beta-naphthol, of greater antiseptic value, and that the amount necessary to intoxicate a man of ordinary weight is about one pound.—*Gazette Hebdomadaire*, February 10, 1888.

Zooplastic Grafts. — Surgeons are familiar with skin grafting in the human subject, but it is rather a novel procedure to substitute the skin of birds and poultry for snips from the patient's own healthy skin. Wiesmann twice transplanted skin from pigeon to pigeon with success, and three times from fowl to fowl. Under the title of *Dermepenthesis*, Mr. G. F. Cadogan-Masterman published some interesting cases a few weeks since in our columns, in which he had succeeded in utilizing the skin of young wild rabbits for the purpose of bringing about the cicatrization of raw and ulcerating surfaces. Several others have repeated and varied Wiesmann's experiments, but before Mr. Masterman none of them seem to have been enterprising enough to spare their patients the disagreeable snipping incidental to the operation as it is usually practised. At about the same time Dr. Redard communicated to the Paris Academy of Medicine some observations of his own with animal grafts on wounds in human beings. In a case of severe burn of the scalp of eight months' standing, in a child two years of age, he obtained rapid cicatrization by means of grafts from a fowl. He first tried grafts of frog's skin, but as these proved to be repulsive to patients, and did not give very good results, he substituted others from the fowl, and the wound, which measured three inches by two and a half, had completely healed in two months. He had been equally successful in other and subsequent cases. He takes the skin from beneath the wing of a chicken, carefully securing the subjacent cellular tissue, but avoiding adipose tissue. The transplanted pieces varied from a sixth to a third of an inch in size, and they were maintained in position by means of a little cotton-wool and iodoform gauze. The skin of birds and fowls has the advantage of being supple, delicate, and vascular; it adapts itself readily to the surface of the wound, and adheres without undergoing absorption.—*British Medical Journal*, February 18, 1888.

Saccharin in Diabetes.—PURDY, of Chicago, concludes as follows from his clinical observations upon saccharin, in the *Journal of the American Medical Association* of February 25, 1888:

First. That in this product we possess a flavoring agent for food and drink the palatability of which is quite equal to that of the finer grades of sugar, and which may be used by diabetic patients with the greatest impunity.

Second. That through its antiseptic properties it retards the abnormal fermentative changes in the stomach so common in diabetic patients—thus promoting digestion and relieving flatulence.

Third. That while as yet we are without sufficient practical data to judge of its blood effects in large doses to diabetic patients, yet both chemistry and physiology would indicate its use for the purpose of favorably influencing some of the more fatal complications of the disease.

What is a Stone in the Bladder?—SIR HENRY THOMPSON describes the calculi which he considers "stone in the bladder" as follows, in a communication to the *British Medical Journal* of February 18, 1888:

I venture to think that twenty grains is the very lowest weight, in the adult, the removal of which should be esteemed an operation for stone in the bladder. And in chronic prostatic retention cases, where the phosphatic concretions so frequently and so rapidly form, I have never recorded anything as a stone which has not reached at least half a drachm.

There is another aspect of the matter, too, which cannot be lost sight of. I think that it is very undesirable, from more than one point of view, to convey an impression to any patient from whom a bit of gravel weighing two or four grains has been removed that he has undergone operation for stone in the bladder, and that the custom might give support to objectionable practice.

I beg to submit these remarks to the consideration of my professional brethren, in the belief that it is desirable to have some general understanding as to the meaning of the term in question, and to adopt, if possible, a uniform method in the employment of it in future.

The Treatment of Cold Abscesses by Iodoform in Ether.—HOLSTEIN, in a recent Paris thesis, reports that in Verneuil's clinic in Paris, tuberculous abscesses have been treated for two years with iodoform dissolved in ether, with excellent results. Of 20 cases 11 were cured, 6 improved, and 3 unimproved by this treatment. After aspirating the contents of the abscess from two and a half to twelve and a half drachms of a 10 per cent. solution were injected once; in large abscesses as much as twenty-five drachms of a 5 per cent. solution were injected. If the ether proved irritating it was injected through an hypodermatic syringe. This method is especially useful where it is desired to avoid a scar.—*Centralblatt für Chirurgie*, No. 4, 1888.

Antisepsis in Ophthalmology.—SCHMEICHLER, in reviewing the advances of antisepticism, quotes the statistics of Arlt, 1700 cataract operations in eight years with a percentage of bad results of 2.06 per cent.; also Gräfe, at Halle, who performed 426 cataract operations without a bad result. He considers affections of the conjunctiva and tear sacs especially fitted for antiseptic treatment, and recommends solutions of corrosive sublimate and emulsions of iodoform, in varying strengths, for this purpose. Mercurials are to be used in 1 to 2000 and weaker solutions; the iodoform emulsion should be ten per cent. —*Präger med. Wochenschrift*, February 8, 1888.

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SATURDAY, MARCH 17, 1888.

ACUTE RHEUMATISM.

In a recent Report of the Collective Investigation Committee of the British Medical Association (*British Medical Journal*, February 25, 1888) Dr. Whipham has analyzed 655 cases of acute rheumatism, chiefly sent in by country practitioners, to which class the profession is largely indebted for the valuable material composing the previous reports of this Committee.

Of the cases, 57.25 per cent. were males, and 42.25 per cent. were females. It is interesting to note how few cases were in children under ten years old, only 32 in all; 80 per cent. of the cases occurred between the twentieth and fortieth years. Of occupations, that of domestic servant heads the list with 71 cases, which Dr. Whipham attributes in part to the inordinate consumption of alcoholic drinks to which persons in this station of life are addicted, and also to the want of proper exercise with its consequent accumulation of nitrogenous compounds in the tissues. To this should be added a still more important factor, the damp, ill-ventilated rooms in which persons of this class pass a large proportion of their time.

Very careful inquiries were made as to the habits of those attacked. An elaborate analysis is given of the course and complications in the three classes —teetotallers, temperate, and intemperate persons. It is stated that on the whole the figures are in favor of the teetotallers, except in three important points: first, the average duration of the attack was 23.6 days in the intemperate males against 25.27 days in temperate males and 27.26 days in teetotallers; secondly, the percentage of deaths in teetotallers is more than double that of temperate persons; and, thirdly, the percentage of heart affections is in teetotallers 51.41 against 40.59 in temperate and 46.87 in intemperate males.

The general opinion that rheumatism is more prevalent in low, damp localities is not borne out by the figures, for by far the larger number of cases occurred in high, dry, exposed regions. More than 47 per cent. of the cases occurred when the atmosphere was damp, cold, and cloudy.

Of antecedent illnesses 24.12 per cent. of the patients were the subjects of tonsillitis, 13.43 per cent. had had scarlet fever, 2.59 per cent. had suffered with anæmia, and in only 1.98 per cent. was chorea either antecedent or concomitant. Considering the close relationship believed to exist between rheumatism and chorea, it is rather remarkable that in such a large series of cases, 655, there should have been only 13 instances of chorea. Of recent antecedents to the rheumatic attack, exposure to cold and wet, particularly when combined with over-fatigue, were the most frequent, occurring in 366 cases. Over-fatigue alone, either sudden or prolonged, was present in 64 cases.

A very full analysis is given, illustrating the influence of treatment on the fever, the pain, and the duration of the attack. There were seventeen different combinations employed, into fourteen of which the salicin compounds entered. The favorable effect of these remedies is shown in shortening the period of fever, in lessening of the pain more quickly, and in reducing the duration of the attack. The largest number of cases were treated with the salicylate of sodium or potassium, and the average duration of the fever was 8.65 days; of the pain, 10.18 days; and of the whole attack, 19.03 days. Of the total number, 655 cases, 536 were treated with salicin compounds, and in only 22 cases did they fail; in this number the salicylates failed in 16 cases.

Of cardiac complications, pericarditis and endocarditis occurred synchronously in 57 cases, and in 54 cases pericarditis occurred alone, making a total of 111 cases, 16.94 per cent., in which the pericardium was involved; of these cases 6 died. In 77 cases heart murmurs developed, which disappeared with recovery, and in 128 the murmur originating in the attack persisted. The mitral systolic murmur was present in 94 of these cases. Of other compli-

cations, pneumonia and pleurisy were the most frequent, 11 cases of the former and 13 of the latter. Hyperpyrexia occurred in 4 instances, 3 of which proved fatal. In 1 case the temperature rose to 110° on the twenty-first day.

Seventy patients suffered relapse; it was impossible to say whether or no the treatment had any influence in this respect, though over 97 per cent. of these cases were taking the salicin compounds.

Death occurred in 22 cases, 3.30 per cent., in the majority of the cases with cardiac complications.

A special value is attached to these reports of the British Association, as the returns are sent in, as a rule, by family practitioners, and we are in this way gradually acquiring statistics of disease in private practice.

THE FOURTH YEAR AT HARVARD.

As endowments increase, the establishment of a compulsory fourth year in medicine is only a matter of time with the great schools of medicine in this country. Meanwhile it is interesting to study the tentative efforts in this direction, and the report of President Elliot, of Harvard University, as analyzed in the *Boston Medical and Surgical Journal* of February 16th, supplies us with some interesting facts.

Since 1881, when the optional fourth year was established with a special degree *cum laude*, the number of students taking this course rose gradually from ten in the first year, to twenty-one in the session of 1886–87. It has been found, however, that not one-half of those who take the fourth year apply for the degree *cum laude*, while of those who do, the percentage of rejections is very high, 35, against 16½ per cent. for the third year degree.

One reason, we suppose, why so few apply for the degree *cum laude* is that they already possess the ordinary doctorate, and from various causes (of which, from the high percentage of rejection, fear of failure may be one) give up the attempt. Our contemporary notes that the fourth year is naturally made up of two sorts of men, the specially good student and the indifferent ones, who need four years' study to obtain the third year degree. In the analysis no attempt has been made to separate the second class. It would be interesting to know how many of the applicants for the fourth year degree had been rejected at the third year examination.

The advantages of a fourth year cannot be judged in this way any more than those of a third year can be estimated in schools in which it is optional. Perhaps it is the best which can be done at present, until the public arouse to the necessity of endowing medical colleges. There is nothing in the report in the slightest degree discouraging to the friends of higher medical education, and could the financial difficulty be met, the Harvard School might solve the problem of the fourth year. Indeed, the prospects to-day, should an obligatory fourth year be added, would be much brighter than they were in 1871–72, when Harvard boldly advanced the curriculum to three sessions of nine months. To timid professors and trustees of medical schools we would advise a course of reading of President Elliot's Reports of 1872–73 to 1886–87 inclusive.

THE PHILADELPHIA HOSPITAL.

THE recently issued Report of the Department of Charities and Correction contains a very full statement of the position and prospects of this institution. The new Board of Directors under Dr. J. W. White has continued the good work started under the recent management, and has made several important changes, notably bringing the Insane Department and the Women's Out-wards under the Executive of the Hospital. The Board seems fully aware of the urgent necessity for making additional provision for the paupers, and urges again the separation of the Almshouse from the Hospital, and its removal to another locality. This would give the room urgently demanded for the accommodation of the convalescents who are now herded in attics in a manner disgraceful to any civilized community. The Board has done its duty in boldly stating it to City Councils, with whom now rests the responsibility for this lamentable state of affairs. As the report states: "In these attics are congregated so many individuals that the two thousand cubic feet of space which, according to the best authorities, is essential to each, is reduced to an average of about three hundred feet. When the beds are prepared for the night there is barely room enough left to enable one to walk from one end of the room to the other. Many of the patients are compelled to sleep two in a bed!" A single nocturnal visit by the Mayor and Councils to the attics of the Philadelphia Hospital should suffice to secure appropriations amply sufficient to remove at once this deep disgrace.

THE Second Congress of the German Society for Gynecology will meet at Halle, May 24–26, 1888. Communications should be addressed, before April,

to Professor Kaltenbach, at Halle. The meeting will be under the leadership of Kaltenbach, Olshausen, and Gusserow.

The *Albany Medical Annals* for February appears in a new dress, and under the editorial management of a new committee, namely, a committee of editors appointed by the Library and Journal Association, recently inaugurated in Albany. The important subject discussed before the local medical society in December last was the dangers of tonsillotomy, and it is well reported in the February number. Dr. Blair narrated two cases of serious, though not fatal, hemorrhage following the use of the tonsillotome.

The American Anthropologist, edited by a Committee of the Anthropological Society of Washington, has recently appeared for the first time. It is a magazine of nearly a hundred pages, containing articles of value to those interested in anthropology.

The publication of the *Berliner Klinik*, under the editorship of Hahn and Fürbringer, and also of the *Wiener klinische Wochenschrift*, is announced in Berlin and Vienna, respectively.

The Cartwright Lectures for 1888 of the Alumni Association of the College of Physicians and Surgeons of New York will be given at the College by Prof. William H. Welch, of Johns Hopkins University, on Thursday evenings, March 29th, April 5th and 12th, at 8.30 P. M. The subject will be the "General Pathology of Fever."

Assistant Surgeon James E. Pilcher, U. S. A., will read a paper on "The Transportation of the Wounded," before the Military Service Institution, at Governor's Island, New York Harbor, next Tuesday, at 2 P.M.

The Long Island College Hospital, at its commencement last week, conferred the degree of M.D. on thirty-six graduates.

The Medical College of Ohio conferred the degree of M.D. on seventy graduates. Dr. John S. Billings, U. S. A., a graduate of the class of 1860, delivered the Address to the Alumni.

Dr. Henry F. Lyster, of New York, has been appointed to the chair of the Practice of Medicine in the Michigan University.

Dr. Lewis A. Stimson has been appointed one of the Surgeons to the New York Hospital.

Dr. Henry B. Sands has tendered his resignation as Surgeon to Roosevelt Hospital.

Seaman, of Howard University, Washington, has secured information from more than twenty American colleges, regarding the kind of microscopes used and the results of wear. The answers were, in a large majority, in favor of microscopes of American manufacture.

The Saturday and Sunday Hospital Fund of New York City collected this year $50,400, or about $2600 less than last year. This sum will be distributed among twenty-four hospitals and dispensaries, in proportion to their amount of days of care of free patients. The Mount Sinai and St. Luke's hospitals will get about one-third of the receipts. The cost of distributing this charity is about $2600 yearly.

The Metropolitan Fund of London this year received £39,000, which has to be divided among 150 hospitals and dispensaries, with the exception of four per cent. of the amount, which is set apart for the purchase of surgical instruments and appliances for crippled persons.

It is estimated that one-half of all the drugs imported into the United States is consumed in the manufacture of patent medicines.

In New York State there were sixty-five convictions of illegal medical practitioners during the year 1887.

A mind-healer, named Teed, has been arrested in Chicago, consequent upon the death of a patient by pneumonia, the coroner's jury making declaration that the death was attributable, in part at least, to the lack of proper medical treatment. The accused will be tried for practising medicine without a license, an offence against the laws of the State.

According to the recent publication of Bonbrow, Medical Director at St. Petersburg, the mortality, in some localities in Russia, is 60 or 80 to 1000; among children it rises to 60 or 80 in 100.

There are, on this basis, 2,800,000 deaths in the Russian Empire yearly, 500,000 of which are due to imperfect sanitation.

REVIEWS.

Fever Nursing. By J. C. Wilson, A.M., M.D. 12mo. pp. 210. Philadelphia: J. B. Lippincott Co., 1888.

This most recent member of the series of Practical Lessons in Nursing is written by one who has already shown his knowledge of fevers in his *Treatise on Continued Fevers*. In accordance with this, the continued fevers receive full attention; while pyrexia in general is considered at some length, septic fever is not mentioned as such, and the mind of the nurse is directed to the fevers treated by the physician. As the fever of sepsis is not described in *Maternity and Childhood*, it evidently awaits the volume on Surgical Nursing.

"Fever Nursing in General," almost the first half of the book, treats fully of the care to be given the patient suffering from any non-septic fever. The experience of the author has been in support of baths and packs of *cold* water; he has apparently not met with the writer's experience, who found in several cases of hyperpyrexia attended by marked nervous prostration that cold applications produced only increased prostration, while hyperpyrexia yielded to sponging with *hot* water, to which a little alcohol had been added. These cases are certainly not common, but we believe sponging with a warm, or even hot fluid, an efficient reducer of temperature, when practised with suitable discrimination.

The nursing of the continued fevers is admirably described. Symptomatology is treated so distinctly that she must be a dull nurse who does not obtain a clinical picture of these diseases of great value.

In treating of the contagion of diphtheria Dr. Wilson speaks with such refreshing force regarding the conduct of the apparently healthy members of the household that we wish his words could be in the possession of every household in the country. He says, "The well, or apparently well members of the household must not attend church, places of amusement, or other public places of assemblage, nor pay or receive visits. The children must not be allowed to go to school." If such isolation of infected households were commonly practised, epidemics of diphtheria would be less frequent. The author's "Fever Charts," illustrating typical cases of the most common fevers, are appended.

In Dr. Wilson's *Fever Nursing* the best work done in the scientific care of the sick receives a full and attractive exposition, and we cordially commend the book, not only to nurses but to physicians, to whom it will be a useful memorandum of points of practical importance.

SOCIETY PROCEEDINGS.

THE PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, January 23, 1888.

The Vice-President, Charles K. Mills, M.D., in the Chair.

Dr. F. X. Dercum reported

A CASE OF CHOLESTEATOMA, WITH REMARKS ON THE ORIGIN OF THE TUMOR.

P. J., aged forty-three, unmarried, an Englishman by birth, was admitted to the nervous wards at the Philadelphia Hospital on August 3, 1887. He was dull and stupid. He answered questions slowly and imperfectly, and gave a very poor and disconnected account of himself. He said that about nine years ago he had had a wen removed from his scalp at the German Hospital. Otherwise he had been in good health.

Careful examination of the scalp failed to reveal any evidence of a former operation, and an exhaustive search among the records of the German Hospital failed to reveal any history of it.

His present trouble had commenced about three months ago, with trembling of the hands, and more or less mental confusion. He had what he called a "rigmarole of things" in his head. On admission, he complained of constant and persistent headache, which he invariably referred to the base and the back of the skull. He was, in addition, quite weak, but in no sense paretic. Sensation seemed to be normal. The knee-jerks were markedly increased. An examination of the eyes revealed double optic neuritis. The pupils at this time showed no decided inequality.

Brain-tumor was deemed probable, but, owing to the absence of special symptoms, it was not possible to locate the lesion. There had at no time been any localized palsy, any convulsion, or, in fact, any symptom referable to this or that part of the cortex.

The patient was under constant observation up to the 31st of August, when he died. During this time his mental condition gradually grew worse. He became more and more stupid, and at times wandered. On the day of his death he commenced vomiting, the vomit consisting merely of mucus and bile. He rapidly became less and less conscious, and finally lay perfectly quiet, with the exception of occasional movements of the head and arms. These movements were, however, not in any way convulsive. When the hands or arms were pricked with the æsthesiometer he would draw them away, but further than this he could not be aroused. His right pupil was now seen to be widely dilated, while the left responded but sluggishly to light. His pulse was 64, soft, and compressible, and his respiration was 28. His general appearance was that of a man in a sound sleep, but whose face was flushed. Toward evening his depression deepened, and at 7.20 P.M. he died.

At the autopsy it was found necessary to remove the brain entire with the calvarium, all of the tissues, the brain, dura, and bone being very much adherent to one another. An examination revealed this adhesion to exist in an area some two or three inches in diameter in the right frontal region. In forcibly separating the dura from the bone a rough prominence was discovered on the latter, occupying the middle of this area. The prominence measured about two-thirds of an inch across, and about one-sixteenth to one-eighth of an inch in height. The outer surface of the calvarium revealed no change other than a slight deepening of color—a faint purple tinge—at the site corresponding to the prominence on the inner side. The dura mater, on the other hand, exhibited a depression, a shallow pit, the counterpart of the bony prominence. Beneath this pit, and for the radius of an inch or more around, the tissue felt much firmer than normal, and a rounded mass was readily outlined by the finger. On attempting to raise the dura it was found to be intimately united with the underlying tissue, not only over the tumor, but also over the entire

vertex. The pia, in turn, was everywhere intimately adherent to the cortex. Its meshes were quite œdematous, as was also the brain substance. Some of the convolutions, especially at the base, were much swollen. The walls of the ventricles were exceedingly pale. The right lateral ventricle was much compressed. The choroid plexuses were cystic. The vessels at the base were apparently healthy. The veins of the pia were quite full.

The tumor was found to be situated between the first and second frontal convolutions on the one hand, and the anterior central on the other. It had developed downward, and gradually separated these convolutions. The pia was intimately adherent to the edge of the growth, and did not separate it from the brain substance. A number of vessels could be seen passing from the former directly into the latter. When incised the tumor had a whitish or pinkish-white color. It was quite friable, and a pinkish-white juice could be expressed from it.

The microscopical examination reveals its general structure to be that of a sarcoma, while scattered through it in varied profusion we find typical, pearly bodies.

Dr. Dercum had not been able to find in the literature of endotheliomata or cholesteatomata an exactly similar case. The formation of the pearly bodies in the midst of a sarcomatous tissue is exceedingly interesting, especially in the present instance, as the locality of the tumor gives abundant opportunity for the origin of the endothelioid formations. They closely resemble the pearly bodies of the epitheliomata, so much so that some writers still believe them to be of epiblastic origin. Their occurrence, as in the present instance, in the depth of a sarcomatous tissue, is certainly another argument against this view.

On examining them closely their concentric, onion-like structure is readily seen. Their centre appears to be made up of a granular and nuclear material which is probably cell-detritus. Toward the periphery individual cells, more or less preserved, are still to be distinguished. They are sharply differentiated from the surrounding tissue; though the vacant space seen about them is probably the result of the hardening process.

Clinically this tumor is interesting from the absence of symptoms enabling us to localize it. Dr. Dercum's impression was that it was either far forward in the frontal region or back somewhere in the occipito-temporal region, not interfering with the cuneus. He favored the latter supposition on account of the basal and occipital pain. He regretted that the scalp was not shaved in order that evidences of traumatism could have been better sought for.

The man had an exostosis on the inner table of the calvarium involving the upper portion of the frontal bone somewhat in advance of its junction with the upper portion of the right parietal. There had been inflammation of the dura about the exostosis, with adhesion to the pia. From this focus of irritation the tumor appears to have developed.

Dr. William Osler said that a short time ago he reported a case in which the pearly bodies were even more distinct than in the specimen shown and in which the origin from the endothelium of the floor of the third ventricle and infundibulum was evident. In this tumor, as in Dr. Dercum's, there were many spindle-cell elements. Cholesteatomata are more common at the base than on the cortex.

Dr. Charles K. Mills said that Dr. Dercum's case is of interest as bearing upon the localization of growths in the second frontal convolution. In the case on which Dr. Keen operated, the tumor was in much the same position, perhaps a little lower. In a case which he reported to the Pathological Society the tumor was situated in much the same locality. In all these cases there were eye symptoms. In his own case he noted a certain fixity of the eyes with dilatation of one pupil. These cases to a certain extent carried out the idea of Ferrier and others that the oculo-motor centres are located in the second frontal convolution.

Dr. Dercum said that his patient had no specific symptoms of the locality of the tumor. He did not place the same interpretation upon the eye symptoms as did Dr. Mills. This tumor did not press directly upon the cortex, nor did it irritate the cortex. The man was killed by œdema of the brain and not directly by the tumor itself. The mass grew downward between the first and second frontal convolutions and the ascending frontal, and it separated these so gradually that no irritation was produced. The eye symptoms were of late occurrence. The tumor became so large that the venous return was interfered with and the brain became œdematous and was so found at the post-mortem. As a result we should expect oculo-motor symptoms from transmitted pressure. The size of the tumor was probably also increased by œdema. The right half of the brain was not as œdematous as the left, as it had not so much room to swell. The left base was much swollen.

Dr. Osler presented

A CASE OF LOCAL SYNCOPE AND ASPHYXIA OF THE FINGERS.

The patient came to the Infirmary for Nervous Diseases a few days ago with her hands in the following condition. The second, third, and little fingers of the left hand were like marble, the line of demarcation being at the second joint. The thumb and index fingers with those of the right hand were livid, particularly the terminal phalanges. The condition is aggravated by exposure to cold. The local syncope is so marked that he thought the members would be interested in it. The condition is variable, the syncope in a short time is followed by asphyxia. This is the mildest grade of Reynaud's disease, which in extreme cases may result in gangrene of the affected finger-tips.

He thought that the local syncope is caused by vasomotor spasm. Following this there is relaxation of the spasm with extreme engorgement. Such a condition produced by the local action of cold is closely related to chilblains. Many of these cases have had chilblains. Last winter he had at the University Hospital a child, aged thirteen or fourteen, who had presented for many years this condition of local asphyxia of the terminal phalanges of both hands. It did not vary in any degree while under observation.

Dr. Edward N. Brush reported

A CASE OF PORENCEPHALUS, WITH SPECIMEN.

J. K., aged fifty-seven, a native of Pennsylvania, married, by occupation a laborer, was admitted to the Pennsylvania Hospital for the Insane, June 16, 1885.

The following is an abstract of the history of the case: At birth the patient was observed to be unsymmetrically developed. The left side was smaller than the

right, the limbs were shorter and their circumference less. No history of infantile paralysis could be obtained, and the patient is said to have walked at about the usual age, though with a limp which continued through life, owing to the shortness of the left leg.

At the age of nine, while playing in a barn he fell to the floor from the hay-loft a distance of some sixteen feet, striking the back of his head. For some weeks following this fall he complained of headache, but his general health did not seem to be affected.

As a young man he was intemperate in the use of liquor, but he had been for some years prior to admission of temperate habits.

A maternal uncle had been insane and several relatives are said to have died of "dropsy of the heart."

About nine years before admission to the hospital he had sunstroke, and was from that time frequently troubled with severe headache, especially during the hot weather.

He had always been a man of violent temper and rough in conversation, and, following the sunstroke, is said to have become worse in these respects. By some he was regarded as not possessing a thoroughly balanced mind. His friends had not noticed any active mental disturbance earlier than a week prior to his admission to the hospital, when he suddenly became noisy and violent, and gave expression to extravagant delusions. His condition, however, on admission pointed to a much longer period of mental disturbance, as he was in advanced general paresis. Upon inquiry, it was found that as early as December he had been talking in a boastful manner of his power and possessions, and particularly of the speed of his horse. It was also found that he had not, on account of his imaginary wealth, made any charge for his services as a carter since spring.

On admission he walked with a slight halt, the left leg was shorter than the right—as was also the left arm; there was some asymmetry of the skull, particularly in the occipito-parietal portions—the left arm was stiff from an old fracture. In addition to the limp, his gait was somewhat ataxic. He swayed to a marked degree when standing with his eyes shut. The tendon (patella) reflexes were absent. The pupils were unequal, the left being the smaller. They responded to light very slowly, and not at all to accommodative changes. No other examination of the eyes was made at the time, and the patient was never in a condition subsequently to permit any. There was commencing cataract in each eye.

The patient gave expression to very extravagant delusions of wealth, and was lavish in his gifts of checks to all about him.

There was marked tremor of the lips and tongue, and of the hands and fingers as well. He pronounced his words in a hesitating, drawling fashion, and frequently stumbled over words of many syllables.

The case progressed without incident for some weeks. He was frequently noisy, shouting and singing. His gait grew more disturbed—he manifested a tendency to fall forward, and, when once started, would almost run at times to keep from falling. At the end of a month his pupils had become almost pin-points. His speech was more hesitating and his delusions more extravagant. He said that he had a horse which could trot a mile in a minute and a quarter less than no time—and another that could go around the earth in two minutes and a quarter. He had hallucinations of sight and hearing.

For a time the patient gained in flesh, but soon lost and in the fall was quite emaciated, though eating heartily. The tendency to fall forward continued, and it became necessary to support him in walking. When he could be induced to stand still, he was able to support himself fairly well.

To omit unnecessary detail, it will suffice to say that the patient became noisy, untidy, and very destructive of clothing—at the same time failing mentally and physically. In November, five months after admission, he was quite demented, and his speech was hardly intelligible.

On December 2, 1885, the ward notes state that his morning pulse was 48, temperature 97°; P.M., pulse 56, temperature $97\frac{8}{10}°$, in bed quite feeble. On the day previous he had been up and had taken some exercise in the ward with the assistance of an attendant.

December 3d: A.M., pulse 60, temperature $97\frac{8}{10}°$; P.M., pulse 64, temperature 98°. Heart sounds muffled. Respiration 14.

December 4th: A.M., respiration blowing, 10 to 12; pulse 48, face pale, body generally blanched; is comatose. At 2.30 P.M. the respirations were but eight per minute and wholly diaphragmatic; pulse 54. Died at 8.15 P.M.

Autopsy sixteen hours after death. Examination made of brain only. On removing the calvaria the dura in the right occipito-parietal region protruded, bulged out as if from internal pressure. Dissecting the dura carefully from the brain, to which it was strongly adherent over the vertex, this protrusion was seen to be due to a large accumulation of serum beneath the arachnoid. In removing the brain, the arachnoid was accidentally ruptured and the fluid escaped. About six fluid-ounces were collected and found to differ in no respect from the ordinary cerebro-spinal fluid.

Enlarging the opening in the arachnoid the cavity which is shown in the specimen was found. It will be observed that it communicates with the lateral ventricle, the posterior cornu of which is enlarged, and that it is lined, except where it communicates with the ventricle, with the pia mater. This cavity, it will be observed, occupies the position of the parietal lobe and encroaches also upon the occipital and temporal.

The ascending parietal convolution is, in its upper portion, almost wholly absent, a small amount of cortical substance held in the meshes of the membranes alone remaining.

The superior parietal lobule, or a portion of it rather, forms the roof of the cavity. Nothing of this lobule remains but a mere shell of cortical substance and membrane which overhangs the cavity.

The posterior portion of the superior temporal convolution is absent and nothing but a thin membrane exists between the cavity and the fissure of Sylvius, which is turned abruptly upward. The inferior occipital convolution appears intact, but of the superior and middle only a small portion remains.

On the inner surface of the hemisphere the cuneus is simply represented by a shell of brain substance, and of the quadrate lobule nothing remains but a thin stratum of brain substance at its anterior portion.

If the right hemisphere is compared with the left, the portion not encroached upon by the cavity is markedly smaller, and the convolutions are not as well developed.

The difference in weight between the two hemispheres was, when removed and thoroughly freed from fluid, nine and one-eighth ounces.

The cerebellum has developed unsymmetrically, the right half extending upward and forward considerably in advance of its fellow, owing to the absence of resistance from the right cerebral lobes. It is to be regretted that the maniacal state present at the admission of the patient, and the subsequent dementia into which he passed, prevented a more careful clinical study of the case, and especially that no opportunity was afforded for recording the eye symptoms.

Dr. E. T. Bruen also presented a specimen from a

CASE OF PORENCEPHALUS.

The specimen of the brain which was presented was removed from the body of Mary C., æt. thirty-two, who died in the Philadelphia Hospital September 21, 1887. On removing the dura mater four cysts were found situated upon the cortical portion of the brain near the occipital lobes of both sides.

There were two cysts on each side of the median fissure, those on the right side were irregular in shape, and somewhat larger in size than a walnut. They were situated mostly over the occipital lobe, but the outer one particularly extended over a portion of the parietal lobe. In the left cortex the cysts were much larger, the one close to the longitudinal fissure extended forward three inches, and was an inch in diameter. The smaller cyst was two inches long by three-quarters of an inch in diameter. The inner and larger cyst extended over the occipital and parietal lobes, parallel with the longitudinal fissure. The outer and smaller cyst occupied a position over the occipital lobe, but extended somewhat over the parietal lobe. The walls of the cysts were composed of thin lamina of membrane, and contained a clear fluid. Owing to the pressure occasioned by the cysts, extensive atrophy of the convolutions of both occipital lobes had occurred, but upon the left side the convolutions of the superior portion of the parietal lobe had also been decidedly involved in the atrophy consequent upon the pressure. This process was so marked that the surface of the left cerebrum was depressed half an inch below that of the right, and the entire left hemisphere occupied by the cysts appeared distinctly smaller. The close proximity of the cysts upon the left side to the fissure of Rolando, shows that the motor tract on this side of the brain must have been subjected to irritation by pressure during the development of the cysts.

Dr. Osler had seen several specimens of cysts in the brains of adults which were evidently, from the history, due to embolism or thrombosis, with secondary atrophy. Such defects may be large, and form examples of true porencephalus; but the condition which Heschel first accurately described, and to which Kundrat has devoted a large monograph, more often originates in fœtal life either in an error of development or as the result of disease. Encephalitis, obliteration of arteries, traumatism at birth, any condition, in fact, which in the fœtus or child leads to destruction of brain tissue, may produce porencephalus. Kundrat states that in the congenital cases the arrangement of the convolutions about the defect is radial. Bilateral lesion, as in Dr. Bruen's specimen, is rare, but the convex surface in the neighborhood of the motor zone is the most common seat. Intellectual defects and spastic paralysis are almost invariable associations when the condition is congenital or due to disease during infancy.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, February 17, 1888.

The President, James Perrigo, M.D., in the Chair.

Dr. William Gardner reported a

SUCCESSFUL LAPAROTOMY FOR PELVIC HÆMATOCELE,

due to rupture of the Fallopian tube in a case of extra-uterine fœtation. The patient, aged twenty-nine, was married in July last, and had an early miscarriage in October for which she was attended by Dr. Arthur Browne; after this she menstruated twice, the last time on the 2d of December. Toward the end of the month she had morning sickness for a few days. During the early part of January a bloody vaginal discharge appeared lasting nearly a fortnight. About the middle of January she was seized with violent pelvic and abdominal pains with most alarming collapse, during which for many hours she was almost pulseless. From this, in a few days she partially recovered, but soon there were recurrences of pain, faintness, and symptoms of peritonitis. Her physicians, Drs. Browne and George Ross, recognizing the nature of the case, requested Dr. Gardner's opinion, and after examination he fully concurred in their diagnosis of ruptured extrauterine fœtation. The next day the symptoms continuing alarming it was decided to open the abdomen. The right Fallopian tube was found expanded in a friable mass in which Dr. Johnston afterward found the fœtus embedded in clots. In attempting to ligature this Dr. Gardner tore it away. The pelvis was full of clots. These were scooped out and the cavity washed out with a forcible steam of water from Tait's large, blunt trocar carried to the dependent parts. A drainage tube was then inserted and left for eight days. For the first nine days the course of the case was perfectly favorable. Then evidences of cystitis appeared, and have continued to be rather severe. There seems no reason to doubt that recovery will ultimately be complete and permanent.

Dr. Gardner remarked that such a case as this illustrates well the triumphs of modern abdominal surgery.

Regarding this particular operation, we owe all that is worth knowing to Lawson Tait, whose remarkable results in a long series of such cases are now well known. The diagnosis is not always easy, but given sufficiently alarming symptoms the abdomen should be opened and the condition found dealt with as may be necessary. It is a great satisfaction to know that in the hands of competent surgeons the operation itself cannot be said to be a source of danger.

Dr. George Ross said he had seen this case in the early stage; when he was called to her she was almost pulseless and extremely pallid, but he did not regard her condition as by any means hopeless. He congratulated Dr. Gardner on the very successful result in this case, and said that, as far as he knew, it was the first case of the kind in Canada which had been treated by abdominal section.

Dr. Shepherd asked if it was not a fact that gynecologists look upon all cases of intra-peritoneal pelvic hæmatocele as due to a ruptured tubal pregnancy.

DR. GARDNER, in reply, stated that such is the opinion of Mr. Lawson Tait, but he considered it might be produced by other conditions, as, for instance, rupture of the ovarian veins, etc.

(The specimen, showing the fœtus embedded in the mass removed, was exhibited; also chorionic villi under the microscope.)

DR. GEORGE ROSS exhibited specimens obtained from a case of

CARCINOMA OF THE STOMACH AND LIVER.

The patient, aged fifty-five, had been under observation for four months and had never had any gastric symptoms, but suffered from profuse diarrhœa and had a haggard appearance. Examination discovered a hard mass in the left hypochondrium which moved with the diaphragm, the liver was not enlarged. There was no pain after eating and no vomiting. The diarrhœa was controlled and patient ate and drank well, but had continuous pain in the epigastrium. The hard nodule in the left hypochondrium rapidly increased in size and it looked as if the left lobe of the liver was the seat of the tumor, but its origin was always doubtful. Later the patient developed albuminuria and amyloid casts were found in the urine.

Patient gradually sank, and at the autopsy performed by Dr. Johnston there was found a large fungating cancerous ulcer occupying an area nearly four inches in diameter on the anterior surface and lesser curvature of the stomach; neither the pyloric nor œsophageal openings were obstructed. The base of the ulcer was deeply fissured and had extended into the inferior surface of the left lobe of the liver. There were no secondary deposits. Nature of growth chiefly scirrhus. The glands in the portal fissure of the liver, stomach, and intestines were in a state of amyloid degeneration. Kidneys and spleen amyloid but not enlarged. Dr. Ross said he had brought the case before the Society, not because it was a very rare one, but because it was important to recognize the fact that we might have most extensive disease of the stomach without having any symptoms referable to that organ. The occurrence of amyloid disease in these cases of malignant disease was rare so far as his experience went.

DR. MCCONNEL asked if it was not a fact that in carcinoma of the stomach there was always complete absence of hydrochloric acid.

DR. STEWART said that this idea was now refuted, as hydrochloric acid is absent from the stomach in many other diseases, and had been found where cancer was present in the stomach.

CALCULOUS NEPHRITIS.

DR. JOHNSTON presented for Dr. Bauer, of Waddington, N. Y., (1) a kidney affected with calculous disease. The entire renal substance was destroyed. The kidney consisted of a series of suppurating sacs, each containing a uric acid calculus coated over with phosphates. The other kidney was greatly shrunken and disintegrated apparently from pyelitis, but contained no calculi. The patient had had pyrexia for years and died of uræmic coma.

(2) A specimen of secondary

CARCINOMA OF THE PERITONEUM.

The growths, whose microscopical characters were those of encephaloid cancer, were all situated beneath the peritoneal coat of the intestines, soft and vascular and varying in size from a pea to an egg. The seat of the primary growth was uncertain.

DR. JAMES STEWART read a paper on the

PHARMACOLOGY OF ARSENIC.

He first dwelt on the mode in which arsenic kills in poisonous doses. Three cases of fatal arsenical poisoning were related in none of which were there any marked changes found in the gastro-intestinal mucus membrane after death. The first case was that of a girl aged nineteen, who was admitted into the Montreal General Hospital in September, 1887, six hours after swallowing two ounces of "Rough on Rats." There were constant retching, vomiting, and intense thirst.

The pulse was very rapid and weak; vomiting and diarrhœa, which latter soon set in, continued until her death four days after taking the poison. At the section performed by Dr. Johnston, twenty-four hours after death, there was found in the anterior surface of the stomach near the pylorus an elongated ulcer half an inch by one quarter, with firm, rounded, and undermined edges. The base, which consisted of the muscularis, was smooth. There was no hyperæmia in the neighborhood or elsewhere in the stomach. Beyond slatey pigmentation of the solitary follicles nothing abnormal was found in the intestines. In the case reported it was mentioned that everything pointed to the ulcer being "a chronic gastric ulcer," and that there was no evidence of any inflammatory action being set up by the arsenic.

The second case was that of a prostitute, aged thirty-five. She swallowed an unknown quantity of "Rough on Rats" on the 29th of September last. Eighteen hours afterward she was admitted into the Montreal General Hospital in a state of great depression. Her pulse was 150, weak, and thready, there was very profuse serous diarrhœa with occasional vomiting. She died thirty-three hours after taking the poison. There was an entire absence of any inflammatory symptoms in the stomach and intestines. Dr. Johnston, who performed the autopsy, found a large ecchymosis beneath the endocardium of the right ventricle.

The third case was one of arsenical poisoning from the application of a paste to a fungating epithelioma of the dorsum of the foot. The patient was a woman aged sixty. The prominent symptoms were purging and vomiting. Dr. Johnston, who performed the autopsy, could find no evidence of any inflammatory action in the stomach or intestine. Arsenic was found in all the internal organs, especially the liver. In this case the drug was absorbed into the blood from the wound and eliminated by the gastric and intestinal mucous membrane.

In all three cases death was brought about not by the violence of the inflammatory action but by the lowered blood-pressure. The reader of the paper went on to say that this lowered blood-pressure is generally attributed to paralysis of the splanchnics and that probably the best means to control it is to inject large quantities of fluid into the cellular tissue after Cantani's method (hypodermoclysis) of treating Asiatic cholera. Injection of several ounces of a weak saline solution every hour or two have proved of great benefit in the latter disease. This, the reader of the paper contended, would be a more judicious treatment of arsenic poisoning than that usually resorted to. After referring to the most probable mode

of action of arsenic in certain diseases of the skin, Dr. Stewart gave an account of a case of acute erythema multiforme following the use of a few doses of Fowler's solution. The intensely reddened skin was covered with innumerable very small papules; there was œdematous infiltration of the subcutaneous tissue of both arms. In another case under treatment with arsenic for angina pectoris, on several occasions an intense temporary erythema of the face had been noticed, and in the same case wart-like excrescences on the backs and palms of the hands which disappeared and reappeared as the arsenic had been stopped or retaken. In both forms of rash there was desquamation, the difference being that in one case it was superficial, in the other deep.

An instance was also recorded of one of the rarest of the untoward effects that follow the administration of arsenic, viz., brown staining of the skin. The case was one of epilepsy in a young man. Bromide of potassium caused such a disfiguring acne that each dose was combined with five minims of Fowler's solution. A few weeks after taking the mixture patient was seen and it was found that the entire body was stained, exposed parts especially so. The staining was not unlike that seen in Addison's disease. It disappeared entirely a few weeks after stopping the arsenic. So far as is known, arsenical staining is not permanent, being different in this respect from silver staining.

Dr. Bell stated that whilst house-surgeon in the General Hospital he had seen not a few cases of poisoning from Paris green, and, as far as he could recollect, there were inflammatory lesions in all cases. He was surprised to hear from Dr. Stewart that in none of his cases these conditions existed.

Dr. Reed said that he had seen one case of arsenical poisoning where there was no gastro-enteritis.

Dr. Shepherd said that if Dr. Stewart's statement was accepted, viz., "that arsenic did not kill by the violence of the inflammatory action excited, but by lowered blood-pressure," then we must altogether change our method of treatment in these cases. The point was a new one to him and he thought the general impression existed that death is in all cases due to inflammatory action. He still had confidence in the use of arsenic in certain diseases of the skin, namely, psoriasis and bullous eruptions, and had, in these cases, used it extensively, but had never seen the erythema or staining produced, but this was probably due to the fact that ointments were used at the same time and in psoriasis especially it would be impossible to detect erythema or staining where chrysophanic ointment was employed.

NEWS ITEMS.

The Medical Corps of the Navy. — Surgeon-General Gunnell and other officers of the medical corps of the navy stationed at Washington are confident that legislation will be secured this year looking to the increasing of the inducements to enter their corps. The Surgeon-General has been before the House Naval Committee, upon the invitation of its Chairman, in the interest of a bill prepared by himself, which medical officers think amply provides for the needs of their corps. The chief aim of the Surgeon-General is to make the rank of assistant surgeon in the navy as attractive as that grade in the army to young physicians. In his statement before the committee he remarked that the corps had not been filled since the war. The number of resignations since that time exceeded one-half the number of medical officers allowed by law. Vacancies are difficult to fill, he stated; the applicants are few, and therefore it is seldom that a young physician is found who is qualified to serve as a medical officer of the navy. A vacancy in the army, the Surgeon-General said, is sought after by hundreds, and no trouble whatever is experienced in procuring physicians thoroughly well qualified to practise their profession.

The success of the army in recruiting its medical corps with desirable men, the Surgeon-General informed the committee, is due to the advantages offered young men who enter the service. They receive a fair compensation and are provided with quarters, and this, together with other allowances, makes their positions well worth seeking. On the other hand, the Surgeon-General stated, the young assistant surgeon in the navy is poorly paid. On board ship he has a hammock in the steerage, where there is no place to study or even to keep his books. It was remarked that the ensigns and assistant engineers are also quartered in the steerage. To this the Surgeon-General replied that those young officers had grown up together and, being jolly young fellows, got along very well. The physician, green so far as affairs pertaining to ship life are concerned, is made the butt for all their gibes and jokes. This disgusts the new man and he soon determines to leave the service which he finds possesses no charms for him, and, in fact, no opportunity to improve in his profession. Besides, he sees staring him in the face an examination of extreme difficulty at the close of the three years without any facilities to prepare himself for it. Five of these young men have left the navy since 1879 and entered the army. The Surgeon-General said that he thought an addition of $200 per annum to the pay of assistant surgeons, with quarters in the wardroom, would enable him to secure men who would be creditable to the corps. He concluded his remarks on the bill by stating that in his opinion the improvement of the medical corps of the navy is a matter that every officer in the navy should be interested in. It is certainly a benefit to the officers and crew of a vessel to have on board a physician in whose skill they all have confidence.

The Epidemic of Typhoid Fever in the Michigan State Prison. — The epidemic of typhoid fever at Jackson, Michigan, in the State Prison, has about exhausted itself, now that the gates through which the germs were introduced into the prison have been closed. A personal inspection of the prison last week satisfied the writer that Warden Hatch has done all that is necessary to do in order to correct the insanitary features connected with the house drainage. The soil pipe from the hospital and its house drain have been relaid so that they can be readily inspected its whole length, and it has been disconnected from the sewer into which the sewage from the west wing enters. An examination of the old conditions shows that the discharges from the hospital water closets had a sheer fall of from 70 to 80 feet, and then entered the sewer with a great velocity, probably siphoning the two traps under a slop sink in the West ward, where most of the fever developed. Under the new

arrangement it will not be likely that the traps will be siphoned. At any rate, the fever has ceased to develop since the warden has carried out his improvements. In the hospital are several convalescents. There were in all about sixty cases, with but four deaths. Dr. Victor G. Vaughan, Director of the Laboratory of Hygiene at the University of Michigan, thus describes how he detected the germs of typhoid fever in the air taken from the sewer: "A quart bottle was filled with boiling water. This destroyed any germs that might be present in the bottle. After cooling, the bottle was held in the sewer with one hand, the space about the arm being closed in order to prevent the gas from coming up into the face. With the thumb and finger the cork was removed from the bottle. Of course the water passed out and the sewer-gas passed in. The stopper was replaced while the bottle was still in the sewer. Some days later a half-ounce of sterilized water was poured into the bottle, shaken, and cultures made with this showed the presence of the typhoid bacillus."—*Sanitary News*, March 3, 1888.

The Cancer Bacillus.—The discovery of the cancer bacillus threatens to have as many claimants as the authorship of Junius's Letters. In addition to Dr. Scheuerlen, who was the first before the public, two Italians announce themselves as having independently made the discovery—Dr. Barnabei, Professor of Clinical Medicine at Siena, and Dr. Sanarelli, a graduate and teacher of the same school. But, it seems, a compatriot of Scheuerlen is also in the field to claim priority in the discovery—Dr. Schill. France, too, not to be outdone, has her special claimant in Dr. Perin. And, finally, Brazil, in Dr. Domingos Freire, seeks to vindicate the honor of the discovery to the New World.—*Lancet.*

A Ptomaine Resembling Strychnine.—Amthor and others have repeatedly found in examining animal remains a ptomaine having many reactions strikingly similar to those of strychnine. It gives precipitates with potassium ferricyanide, chromate, and sulphocyanate, and with picric acid, differing from the strychnine precipitates in that they are amorphous. It gives color reactions similar to those so characteristic of strychnine. Points of difference are its comparative want of bitterness, its very sparing solubility in ether, in washing out from an alkaline solution (its proper solvent being amylic alcohol) and especially absence of tetanizing action on frogs.—*Pharmaceutical Era*, March, 1888.

Dr. Bramann.—The *Lancet* gives the following account of Dr. Bramann, who operated upon the Crown Prince:

Dr. Fritz Bramann has been gazetted in Berlin as the recipient of the Commander's Cross of the Hohenzollern House Order, bestowed by the Emperor as a reward for his skilful performance of the operation of tracheotomy on the Crown Prince. Dr. Bramann is the eldest son of a still surviving landed proprietor near Darkemen in East Prussia. He studied medicine at Königsberg, and acted as assistant to Dr. Schildner, Professor of Clinical Surgery in that school. In this capacity he earned a high reputation for skill as an operator, and was specially deputed from Berlin, where his merits have long been known, to perform tracheotomy, if occasion arose, on his Imperial Highness. Dr. Bramann, who is only in his thirty-fifth year, has had to struggle with many severe illnesses, which wellnigh wrecked his professional career. He has suffered successively from typhus, from enteric fever, and from diphtheria, and on each occasion his life was despaired of by the skilled physicians who were consulted.

Pasteur's Extermination of Rabbits.—The *Lancet* announces that M. Pasteur having entered the lists as a competitor for the reward of £25,000 offered by the Government of New South Wales for exterminating the superabundant rabbits, is sending by the Orient Line mail steamer "Cuzco," three delegates with a supply of "microbes du choléra des poules," with which he hopes to win the prize.

The Dangers of Laundry Work.—Washerwomen are exposed to some undoubted risks in the manipulation of soiled and often infected clothes, etc., and they are generally the first to suffer when an epidemic of any contagious disease breaks out. Even with hands free from abrasions, or other solution of continuity, such diseases may be contracted, but if, as is more often the case, the skin be chapped and raw, blood poisoning, or severe local inflammation, such as whitlow, is extremely likely to follow. The case was reported last week of a woman who died from gangrene, resulting from a finger poisoned in washing the clothes of a person who had succumbed to an attack of phlegmonous erysipelas. The chlorinated solutions used at laundries for bleaching purposes are excellent disinfectants, but they are, as a rule, only used after the washing proper has been done. In this case, a civil action for damages will probably follow, on the part of the children of the deceased woman.—*Medical Press*, February 22, 1888.

Saccharin an Acid.—Saccharin has the properties of an acid. Its compound with cocaine has been prepared, and proves to be a salt freely soluble in water, and having an agreeable, sweet, fruity taste. The compound contains 62.345 + per cent. of cocaine. Combinations with other alkaloids will be produced and their properties studied.—*Pharmaceutical Era*, March, 1888.

The Progress of Cremation.—There are twenty-two crematories in Europe, of which ten have been built within the past year. There have been 600 incinerations in Germany and 800 in Italy. There are seven crematories in the United States, and six in process of construction.

An Important Incompatibility.—The death of a child was caused not long since by ignorance on the part of a physician of the fact that chlorate of potassium and iodide of iron are incompatible. The reaction between these compounds precipitates the iron in the form of sesquioxide, setting free the whole of the iodine, according to the equation $2FeI_2 + KClO_3 = Fe_2O_3 + KCl + 2I_2$. This incompatibility has been pointed out repeatedly, but is not always borne in mind by the physician or the dispenser.—*Pharmaceutical Era*, March, 1888.

Automatic Pill Vending.—An American manufacturer of sugar-coated pills added to the attractions of an exhibit of his product in London an ingenious piece of mechanism, which might have been intended to represent the pharmacist of the future. It was in the form of a cabinet

provided with a series of knobs or buttons, each inscribed with the name of some malady for which a remedy might be asked. The customer puts a coin into a slit and presses the button calling for the remedy he requires, when immediately a drawer flies out containing the article sought. This automatic dispenser, of course, makes no mistakes. If the customer accidentally presses the wrong button, he alone is responsible for the error. Is this really what we are coming to?—*Pharmaceutical Era*, March, 1888.

The Dangers of Medical Missionaries.—Missionaries have usually found that an acquaintance with medicine, and the ability to perform what to natives are most marvellous cures by means of operations, are certain passports in countries where a mere teacher of religion would be in constant danger of being murdered. The lives of Livingstone and many other medical missionaries are examples of this. Even in China, where superstition and hatred of foreigners are at a very high level, medical missionaries have managed to win their way to the confidence of the people in a most remarkable manner. At times, however, there are outburts of fanaticism, promoted probably by the native medicine men, who, in all countries are the most virulent opponents of the introduction of European science. One of these has lately occurred in Foochow. Its immediate cause was the prompt action of one of the medical staff in a case of hemorrhage, in disregard of the native superstition, according to which he ought to have delayed until the patient's friends had finished consulting the gods in the joss-house. As it was, he was unfortunately too late to save the man's life. The enraged Chinamen dogged him from place to place, determined to boil him to death in oil, and had it not been for the courage of some of the converts this would probably have been his fate. As there is a great tendency to wait until the patient is almost moribund before applying for the help of the foreign doctors, it is not surprising that operations frequently fail. It is terrible to think that an unsuccessful operation may result in the murder of the operator. There are, however, signs that China is moving, and the time is probably not very far distant when those who have devoted their lives to the elevation, physical, mental, and spiritual, of the superstitious Chinese will see some fruit of their self-denying labors.—*Lancet*, February 25, 1888.

Duelling Among Medical Students.—A correspondent of the *British Medical Journal* of February 25, 1888, writes from Switzerland that the absurd and barbarous custom of duelling, which still survives with astonishing pertinacity amongst German students from one generation to another, has recently given rise to two sad accidents in Berne. One of the combatants had the whole of his nose slashed off, while another, who was on the point of taking his M.D. degree, had his right arm so entirely disabled by a foil that his medical career has come to a premature end. These accidents, however, did not prevent another series of duels, which took place on February 4th (that is—a couple of days after the above mentioned accidents), in Berne, between several members of the Corporation Helvetia, and as many students from the University of Zurich, who had come to Berne expressly for the purpose. We learn from the *Berner Stadtblatt* of February 7, 1888, that this time no noses were lost and no limbs were maimed, though a good many flesh wounds were inflicted. The police, acting on "information they had received," succeeded in surprising one set of combatants in the morning, and in confiscating the weapons and other fighting gear. This did not, however, cool the ardor of these noble "sportsmen," who managed to bring off some exciting "events" at another place the same afternoon.

The Douche as Affecting Blood Pressure.—Dr. Sergius Vishegorodski, a Russian regimental surgeon, publishes as a graduation thesis some researches on the effects of the general douche at different temperatures on the blood pressure, pulse, respiration, and temperature. The experiments were conducted in the Krasnoselski military hospital, the eleven subjects being feldsher students (hospital orderlies). The reservoir from which the water for the douches was supplied was about fifteen feet above the floor of the bath-room. From the reservoir two tubes, each about three-quarters of an inch in diameter, conveyed the water to the vicinity of the subject; one of these delivered the water in the form of rain; the other delivered three jets directed to the liver, the spleen, and the back. The duration of the douche was two minutes. The blood-pressure was estimated by means of Basch's sphygmomanometer, an instrument which consists of an elastic pad filled with liquid placed over the radial artery, and communicating with a mercurial or aneroid manometer. Dr. Vishegorodski found that with douches of from 63° to 90° F. the blood-pressure was considerably increased, but that douches of from 100° to 114° F. diminished it. The increase of pressure in the former case was found to persist for some time, not returning to its normal amount for more than an hour after the douche. The variations in the blood-pressure occurred simultaneously with corresponding variations in the cardiac beats, the latter becoming slower as the blood-pressure increased and more rapid as it diminished. This appears to be contrary to the results obtained by Delmas, who, however, judged of the pressure merely by sphygmographic observations. Douches of a little over 90° F. produced scarcely any effect on the blood-pressure, the pulse, or the respiration. It is interesting to observe that, in discussing physiological questions, Dr. Vishegorodski—like, indeed, many other Russian writers—quotes as his authority Foster's well-known text-book (Russian translation).—*Lancet*, February 25, 1888.

A Successful Closet.—Architect Stine describes, in the *Sanitary News* of February 25, 1888, a successful closet as follows:

A successful closet must be nearly automatic in its action; it should have no hidden chambers in direct connection with the bowl, that are liable to collect particles of filth which may in time generate foul and dangerous gases to be thrown off into the room. It should be so constructed that no possible back pressure can be exerted from the sewer that would be likely to deprive the traps of their water seal. In other words the soil-pipe should be open to the outer air at both ends. A constant circulation of out-door air can thus be maintained at all times. This method of connections should apply to every fixture in the house. The present custom of boldly exposing every pipe, trap, and bowl to full

view, is one step far in advance of the old method of closing everything in the neatest of woodwork so that none of the piping was visible, and after the work was finished no one knew what was behind it. It was at once a receptacle for dirt, and often the dried results of an overflow of filthy water, and a general cloak for carelessness and neglect, and in time became a veritable pest spot, and disease followed. The physician points to the plumber. An expert is called in, an investigation takes place, and a woful state of things discovered. Possibly no traps under any of the fixtures, and if they are there, they are so connected as to be deprived of their water-seal through siphonage, three-fourths of the time, or so bunglingly put in as to provide an avenue rather than a preventive.

Nervous Shock Produced by Earthquakes.—Many persons who experienced the earthquake in the Riviera have since suffered seriously from nervous shock, although they did not at the time appear to be greatly disturbed. This indicates that more injury may be done to the nerves by an undue excitement than is perceived at the time. The nerve-centres may, as an English medical journal suggests, be likened to batteries, and regarded as apt to be discharged suddenly and sometimes unconsciously; and when once their residual stock of energy is consumed, it can be restored only after a long time and by the exercise of extreme care. It is practically observable that when nutrition is impaired in a nerve-centre or branch, extreme difficulty is met in restoring the integrity of the nervous function, and even the wear and tear of ordinary life seems to increase the exhaustion instead of reducing it by stimulation of the recuperative faculty.—*Popular Science Monthly*, March, 1888.

The Ascaris Lumbricoides in Hens.—ASHMUN writes to *Science* of February 24, 1888, from Cleveland, Ohio, relating the following suggestive incident:

On February 12, 1888, a lady in this city, on opening the egg of an ordinary hen, observed a worm lying coiled in the albumen or "white" of the egg, near the lesser or pointed end. She placed the egg in a saucer, and the albumen flowed out through the opening in the shell, carrying the worm with it. After exhibiting to friends during the day, it was brought to me, February 12th. Upon examination I find it to be an *Ascaris lumbricoides* about four inches in length; and, with the statement verified, the phenomenon becomes interesting in many ways.

An explanation of this occurrence is made as follows by WRIGHT in the same journal of March 2, 1888:

The nematoid worm sometimes found in the white of the hen's egg is not *Ascaris lumbricoides*, as your correspondent of last week supposes, but a *Heterakis*, generally *H. inflexa*, the normal habitat of which is the fowl's intestine, but which occasionally wanders into the oviduct.

Human Electricity.—A hemianæsthetic hysterical female was shown at a recent meeting of the Société de Biologie, from whom M. Féré could under certain circumstances disengage at the surface of the body luminous tufts, one third of an inch long. The son of this woman, likewise hysterical, presented the same peculiarity. In both the skin was remarkably dry. These phenomena could be easily augmented by provoking sensorial excitations. Such phenomena are known more commonly in certain hot and dry tropical climates.—*Lancet*, Feb. 11, 1888.

In Memory of Milton B. Musser, M.D.—The death of Dr. M. B. Musser having been announced at a recent meeting of the Medical Board of the Philadelphia Hospital, the following minute was adopted:

The Medical Staff of the Philadelphia Hospital have heard with sincere regret of the death of their late colleague, Dr. Milton B. Musser, one of the senior members of the Obstetrical Staff.

Coming from a family of physicians, equipped with a complete medical education, and an early training as a hospital resident, with attractive manners, a pleasing address, he was thoroughly prepared, and peculiarly fitted to undertake the duties of his profession.

With large experience and ripe judgment, enthusiastic in his work, honest in all his professional relations, sympathetic, kind, and gentle, he was a model physician, and this institution, that he has so faithfully served, and the staff of which he was so earnest and trusted a member, have lost an honored, tried, and conscientious officer.

The staff desire hereby to place on record their high appreciation of Dr. Musser's many excellent qualities, and the deep sense of loss which they, in common with the community in which he lived, have sustained by his death.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MARCH 10, 1888.

STONE, E. P., *Assistant Surgeon.*—Detached from the Coast Survey Steamer "Bache," and ordered to Hospital New York for treatment.

KEENEY, JAMES F., *Assistant Surgeon.*—Commissioned 1st of March, 1888

BRUSH, GEORGE R., *Surgeon.*—Ordered to the "Omaha" when the "Pensacola" arrives at Aspinwall.

MEANS, VICTOR C. B., *Passed Assistant Surgeon.*—Ordered to the "Omaha" when the "Pensacola" arrives at Aspinwall.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING MARCH 10, 1888.

HUTTON, W. H. H., *Surgeon.*—To proceed to Brunswick, Georgia, on special duty, March 5, 1888. Detailed as President of the Board to select a site for the Gulf Quarantine Station, March 10, 1888.

CARTER, H. R., *Passed Assistant Surgeon.*—Detailed as recorder of the Board to select a site for the Gulf Quarantine Station, March 10, 1888.

WASDIN, EUGENE, *Passed Assistant Surgeon.*—Granted leave of absence for thirty days, March 8, 1888.

BRATTON, W. D., *Assistant Surgeon.*—Ordered to examination for promotion, March 7, 1888.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

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VOL. LII. SATURDAY, MARCH 24, 1888. NO. 12.

ORIGINAL LECTURES.

AMBULATORY AUTOMATISM.

A Clinical Lecture delivered at the Salpêtrière, Paris, Department of Nervous Diseases.

BY PROF. CHARCOT.

GENTLEMEN: You have before you to-day the patient whom you saw three months ago; his history, a very interesting one, is as follows:

Man, thirty-seven years, porter by occupation. In March, 1887, he leaves his home at 8 A.M., suffering from headache, to carry a parcel to one of his master's customers, living about two miles from his home. He takes a car, and stops exactly before the person's house, and even remarks that the person has her address written on the door, but did not go in. Remark well, gentlemen, this is the beginning of a series of incidents which will present themselves successively. It is a very rare fortune to observe such singular phenomena as those before which you find yourself to-day.

Our patient has found the number of the house where he intends to go, but from this moment his remembrance disappears, he is absolutely in the dark. After having reached the house, the next fact he recollects faintly is that he was about four miles from that last place, where he had no business; the next recollection he has, is that he found himself on a bridge, about two miles away from the last place. Remark, he thinks he found himself there, but he is not certain. This is interesting to note, for the disease we think that man is suffering from, presents as a principal symptom, amnesia. But this amnesia may not be complete, and certain vague remembrances might appear here and there.

From the moment the patient found himself on the bridge he walked continuously, until he awakened four miles from that place, at 10 P.M.; that is, he probably walked fourteen hours. During that time his behavior must have been very correct, or else policemen would have arrested him. He must have had his eyes wide open, or else he again might have been arrested. So, he must have conducted himself as you and I; but he was not the less irresponsible and unconscious; and the only points that he remembers during these fourteen hours are, that he was four miles away from his first place of business, then on a bridge, and finally awakening in another part of the city at 10 P.M., where he found himself exhausted, and his boots all worn. He does not remember having taken breakfast, or having spent any money. After having awakened, he went home quietly, and when he reached his home he found himself covered with dust, but no trace of having fallen. The next day he did not feel overfatigued.

From the 15th of March to the 30th of July he worked steadily. On that day he was ordered to take a parcel to a customer. He took a car, and delivered perfectly well what he was charged to do. He then, being very near the place where the "900 feet Eiffel Tower" is being built, thought he would go and see the works. He remembers to have seen the statue of the tower at that time, but from that moment he is again plunged in the dark. He remained two days and two nights without knowing what he did during that time; he finally threw himself into the river Seine, and awakened at that moment. During his sleep he bought a few cents worth of tobacco and a railroad ticket for a short distance. He only had twenty cents in his pocket before he was thrown into this unconscious state.

So you see, gentlemen, how are you going to know when you have a man walking by the side of you whether he is awake or asleep? If there were many people like him it would not be very reassuring to travel. For this man entered a railroad station, took a ticket for Berry, he deposited his money, took his change, received the ticket, and went into the train. When the train crossed the bridge over the river, he threw himself into the water.

A strange incident is the fact that his watch was at the correct time when he came to himself; he did not forget to wind it during this unconscious state. It is true, the same will occur to us. I often, when I retire, try to wind my watch over again, forgetting that I have already done it; he must have done it in a mechanical and unconscious way.

On August 23d he has another attack, he leaves his business house in the morning and goes to all the places he has to, except one. On his way he meets a friend, who asks him whether he could indicate to him a workman. He says he knows one, goes to that workman, and tells him to go to the said place. He then forgets to go home to breakfast; it is 11.30 A.M., his unconscious state begins.

He remembers only on the second day to have passed at Clays, which is twenty-one miles from Paris; he there enters a restaurant and orders a beefsteak, which he does not eat; but he does not know why he did not eat it. He remembers having paid twenty-five cents, but forgets whether he drank his coffee or not; on awakening he found he had put the sugar in his pocket. Then he becomes unconscious again, and he is awakened sleeping under a bridge nine miles from the preceding place. He himself is unable to say whether he slept or not. An amateur fisherman seeing him sitting on the border of the river, and looking steadily toward the river, asked him, "What are you doing here?" "I am looking." "At what?" "Well, I am looking at the Seine." After these questions, he asked the intruder what time it was, his watch having stopped, thanked him, took a car, and came back home.

You will not find, gentlemen, many histories similar to this one. We find here a pathological phenomenon which deserves to be discussed.

I have often asked myself what this singular state of

unconsciousness could be, which would occasionally strike this person for hours, or even days. If we could prevent this man from going about cities without any object in view, it would be a great comfort to him. I have thought, and will try to justify it, that the affection from which he suffers is of epileptic origin; it is the ambulatory form of automatism, an expression which I use to characterize this situation of walking automatically, without any external appearance indicating this automatism.

Remark, that we know very well in epilepsy the post-epileptic insanity. An individual has an epileptic fit, and, under the influence of terrible dreams, he becomes violent, he breaks everything, and he begins to walk; but he is soon arrested, and finds himself at the police station.

Those epileptics might murder some one, commit suicide, while our patient, if he had not been able to swim, would probably not have thrown himself into water. In this there are no traces of over-excitation or violence. In a general way, on the contrary, the terrible violence of the fits is one of the characters of post-epileptic mania; it is probable that we have not these conditions in this case, but they are probably the same series of phenomena under a different aspect. You know that in epileptic fits we distinguish the grand mal and the petit mal.

The words "petit mal" seem to indicate a lesser degree in this affection than grand mal. This is a false idea. It is only apparently a lesser affection, in reality it is not. It has the same consequences that the grand mal has, and sometimes it is even more grave, in a prognostic point of view. Generally we divide it into degrees. The individual who speaks with you suddenly becomes pale, his speech stops, he becomes unconscious for a moment only. If he has anything in his hands he might let it fall, after a few moments his consciousness is restored, this is what we call absent minded. After this comes the vertigo. The patient has the sensation of something turning around him, or that he is himself turning. There may be, in addition, certain movements in the lips which represent convulsive attacks, which are the initial characteristic of the epileptic attack. One employs wrongly the term vertigo to express the state of certain patients who become unconscious without having the vertigo sensation, but who have few convulsive movements.

These attacks of petit mal, I have said for a long time, are as serious in character as the grand mal, in which the patient bites his tongue, the consequences are as serious in regard to the psychical phenomena. One often sees, after an attack of petit mal, the patient rise, make a few steps—speak out single words, always the same during the fit. I knew one, who, on every attack, would continuously say, thirteen, fourteen, fifteen, then begin to walk, in an apparently normal condition. A minute later, all was over. This is the germ of the ambulatory fit. Prolong this state in your mind, and you shall have the picture of the history which this patient has given us, admitting my diagnosis to be correct.

You will find many descriptions of this phenomenon in different works. It is called automatism, and if you want to read something interesting in this respect, I recommend you the paper of Mr. Jackson, of London, on the subject of ambulatory automatic fits, not accompanied by emotions, anger, or violence, and which have such an analogy to the phenomenon of natural somnambulism, that it is questionable whether any difference in the symptoms can be established between these two groups of natural somnambulism and comitial somnambulism.

You often have heard said that epileptics after their fit will behave in a scandalous manner. One will undress himself entirely, as did a professor of music, who, after having given a lesson, to a young lady, suddenly takes off his clothes.

Jackson also reports the case of a man who goes to a restaurant, eats and conducts himself perfectly. He pays, comes home, but does not remember he has gone to the restaurant, and has no sensation of hunger. This case is mentioned as remarkable. Our case has remained two days unconscious. These cases are exactly similar, except that in Jackson's case unconsciousness lasted three or four hours, while in ours the patient remained two or three full days absent minded, behaved very well during that time, which prevented him from falling into the hands of the police.

I have thought it was a case of comitial automatism, but you will say, Are you certain it is not a particular case of somnambulism? I have admitted the comitial point of view, for if it is so, we can treat him. When I saw him for the first time some months ago, he had just had his third attack; we have since given him a preparation containing bromide of potassium.

The first week we gave him 60 grains a day; the second week, 75 grains; the third, 90 grains; the fourth, 105 grains a day. The same treatment the following month. Then he had a fourth slight fit.

One morning he had headache in the left temporal region, and was delivering his goods; while sitting at the side of the coachman he begins to sleep, his companion awakens him. He delivers a parcel, but forgets how he did it. He returns to his business house, and his employer remarks a strange look about his eyes, he is unconscious while speaking to him. He has his eyes wide open. You know that in Macbeth, there is a very deep observation of somnambulism. The physician who is present, seeing Lady Macbeth rise and begin her somnambulic acts, addresses himself to the other persons on the stage, and cries out, "See, her eyes are open!" This is the great question to know, whether the eyes are opened or closed in somnambulism. Our man must have had his eyes open, for he spoke to his employer and also took a railroad ticket.

After having seen his employer, he again, with the same coachman, goes to another place, and complains to his companion of being very tired and very thirsty. When he returned home, he drank a great deal of water, and felt all over his body as if he had been beaten This attack lasted only three hours. After his fits he will sometimes recollect facts which have produced themselves during his unconscious state.

In cases of epileptic fits with violence, we generally say that patients have absolutely forgotten what they have done. This is usually the rule, but there are contrary examples. I remember a case in which a man, after an epileptic fit, had broken everything in his house. The wife and everybody else had run away. He then went out of the house, out of the city into the country, where he shortly awakened, forgetting all that had occurred. He then returned home, and found everything broken, and was greatly surprised to hear that he did the

mischief. He told me afterward that he now thought he had dreamed he had broken everything in his house. You note here, the remembrance of the accomplished act in presence of the results. It is certainly a phenomenon of the same order which makes this man before you to-day remember that he ordered a beefsteak which he did not eat. All this remains in the mind, as a dream, without the memory of the accomplished acts.

But you will say, Is it epileptic; is it not natural somnambulism? There are clinical differences, but there is a resemblance in the form.

Natural somnambulism, as it is called in opposition to artificial somnambulism produced by hypnotism, is a disease of youth and first childhood. It is rare to see it manifest itself in adults or old age. The somnambulistic acts also take place at night, and ordinarily we do not observe the patients at that time, so we have to rely on what parents will tell us about it.

A few minutes ago I was mentioning a passage of Shakespeare, who has shown himself to be a very deep observer in medical subjects as in many other questions. He has given the same definition of natural somnambulism as Joseph Franck. This meeting of the poet and medical man is a curious one.

Shakespeare says, in Macbeth, to define the state of Lady Macbeth:

"A great perturbation in nature! to receive at once the benefit of sleep, and do the effects of watching."

What does Joseph Frank, the physician, say?

"Somnambulism is a perturbation of nature in which the patient has all the appearances of sleep, and yet does all the acts which are done when awake."

If I should wish to define the mental state of our patient, I would say it is that of an individual who appears to sleep, but who behaves as you and I conduct ourselves while awake. He has certainly some strange ideas – to throw himself into the river, for example; but he nevertheless seems to act with reason, and yet he sleeps; his consciousness sleeps; and when his normal life returns he forgets what has occurred during his sleep. We have here a case of somnambulism, or noctambulism, if you prefer. One of the characters of somnambulism is to be nocturnal. Usually somnambulism will nearly always manifest itself at the same hour, midnight, or 1 A.M. So there are children seen to walk in their room, accomplish certain acts, study their lessons for school, etc. I have never heard of a diurnal (daytime) somnambulism, and should I hear of it, my first thought would be that it was a case of comitial somnambulism.

We have here a patient whom you already know, and who presents all the symptoms of natural somnambulism. She is an hystero-epileptic; but I say she is a natural somnambulist with a certain doubt. This patient rises at 2 A. M.

The following are the principal incidents of her somnambulistic life, and the circumstances which make me doubt whether it is natural somnambulism, or whether she is not epileptic. The case was a very interesting one for me to study, for while we have here a service of two hundred epileptics, I had never for the last thirty years I have been connected with this hospital, heard of a case of natural somnambulism present in this house.

My students decided to pass the night to watch her. They saw her rise, and followed her in all her doings, until she returned to bed again. They have made some very interesting observations, so much the more so because it is a difficult matter to get an accurate description of these cases. They saw her leave her bed, jump out of the window, which was nearly on a level with the ground, pull a little working carriage which was in the yard, try to go out by the back door of the hospital, finding it closed, she went up on a wall, and began to run on it without falling.

Another night, the door having been left open purposely, she walked out into the garden and cut some dry stems of plants, of which she made a bouquet, which she took back to her ward, went to bed again, with her eyes *open*.

Shakespeare, in a *Macbeth* scene, says: "Her eyes are open." It is a very interesting observation, coming from a writer who is not a medical man; one might think he intended giving to the nosologists a lesson in pathology. He observed one of the principal symptoms of somnambulism, after having given a definition exactly similar to the one of Franck.

I have asked myself whether in natural somnambulism there are no somatic contractures, and whether there exist any difference in this respect between natural and artificial somnambulism. We have found none of these contractures in our female patient, who can be placed in a state of artificial somnambulism with contractures.

The somnambulist patient has his dream, his idea, he will do it, and will omit all which is not in his programme. If you place yourself before a patient in somnambulism, he will pass on the right or left side of you, not paying any attention to you, who are not present in his dream. It is said that Stuart Mill, while thinking of some philosophical subject, would often forget himself in the streets of London, not seeing the persons going by, absolutely a stranger to the outside world, and yet walking in a very natural manner; during that time he belonged absolutely to his mental education. It is a singular faculty not to see what does not interest you. And yet, if we examine ourselves, we find that not one of us has not gone up a stairs, arrived at a door, opened it, thinking of an entirely different subject. So it has been from the time of Hippocrates down to our days, we do not see our diseases, we are unable to see them. All the physicians have walked in the midst of locomotor ataxia down to the end of this century without seeing it; they have not seen multiple sclerosis; five years ago, I saw for the first time the hystero-traumatic paralysis.

I am not certain that in our patient we have to deal with natural somnambulism, because our patient is an hystero-epileptic with separate crises. In general, we never find epilepsy in our somnambulistic patients, but oftener hysteria.

To come back to the patient before you, to justify the diagnosis in these cases is always a difficult matter, on account of our superficial knowledge of the disease.

There is no case of epilepsy, whatever its form, which does not justify at least the temporary use of bromide of potassium; and if the patient is not cured, we at least find a beneficial influence of the drug. It would be important to know whether in this patient there is anything comitial which has any relation with the ordinary type.

The history of his family is a good one; no traces of nervous disturbance can be found. When a child he always felt perfectly well, has had no convulsions, nor indications of any nervous disorders.

A few minutes ago, I was speaking to you of psychological equivalents to the convulsive attacks. In general they are post-epileptic accidents which follow a fit of epilepsy, or vertigo, or an absence of mind. Sometimes the fit can be suppressed, and yet the ambulatory act can be produced. It would be a case of this kind, in presence of which we find ourselves to-day. I am not certain, however, that there is not here a slight vertigo.

I know an architect who consults me very often. He has frequent absences of mind. He enters a car desiring to go to a certain place. He will pass that place and awakens when the car arrives at its final station. These are post-comitial phenomena.

In regard to our man, I think after all the considerations I have unfolded to you, that we have to deal with a particularly remarkable case of comitial disease, or ambulatory automatism. It is the first time that I have seen an affection of this kind with such clearly pronounced symptoms, you will find no more interesting ones in your nosological descriptions. This man will continue his treatment, as he has done up to now. He will take 75 grains of bromide a day for a week, then 90 grains for a week, the 105 grains the third week, and then over again; and he will report in three months from to-day.

ORIGINAL ARTICLES.

AMBLYOPIA BRIGHTII VERSUS RETINITIS ALBUMINURICA.

By D. C. COCKS, M.D.,
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The recent paper by Dr. Pooley, of New York, read before the New York Academy of Medicine January 19, 1888, revives a subject that although a permanent part of the literature of medicine, yet is so seldom referred to that its existence is often forgotten. I refer to the fact that failure and even complete loss of sight may occur in Bright's disease without any changes in the retina or choroid.

Every third course student has heard of neuro-retinitis albuminurica, but the writers of some of our text-books have forgotten to mention that there is an amblyopia Brightii unattended by lesions of the fundus oculi. In view of these facts I have thought proper to refer to a few cases that have occurred in my practice illustrating this particular symptom of Bright's disease, and by way of contrast will give the history of a case of retinitis albuminurica, hoping thus more forcibly to impress the fact of the existence of amblyopia Brightii without ocular lesions.

CASES OF URÆMIC AMBLYOPIA WITHOUT OCULAR LESION.

Case I.—A few years ago I was called to see a youth about twelve or thirteen years of age, who had been seized with convulsions of an epileptic character and due as I afterward found, by an examination of his urine, to acute Bright's disease. He had been sick for several days, had had nausea, headache, vomiting, and scanty urine, followed by the convulsion for which I was called. When I arrived he had partially aroused from the stupor which always follows these attacks and was complaining that he could not see. The following day I made a careful ophthalmoscopic examination: his sight was entirely gone, he could not even perceive the light thrown by the mirror of the ophthalmoscope. The pupils were dilated widely, but the fundus of each eye was normal. On the closest examination, as this was my first case, I could not find any organic lesion in the retina, choroid, or nerve. This state of eyesight continued for about thirty-six hours, then perception of light was noticed, then objects indistinctly, and finally *perfect* sight was restored. I saw him quite a while afterward, but there had been no further trouble with his eyesight, and his kidneys had returned to their normal condition.

Case II.—Mrs. M., aged forty-five, having previously enjoyed good health, was suddenly taken with intense headache, then failure of vision, slight delirium, complete loss of sight, and finally unconsciousness. Examination of the fundus oculi was negative, the urine showed abundance of albumen. She seemed to recover entirely from this attack, both as to sight and kidneys. One year after this she had a similar attack, not so severe however, and with a like happy termination. The duration of the amblyopic symptoms was about ten days.

Case III.—Mrs. C., aged twenty years, pregnant for the first time (seven months), noticed slight œdema of her feet August 31, 1884; this increased, and her physician, Dr. Lyon, found her urine loaded with albumen. Uræmic convulsions having developed she was delivered by Dr. McLean while she was unconscious (uræmic coma). The following day she partially aroused from this unconscious state, and it was found that she was partially blind, being able only to discern large objects. I made an ophthalmoscopic examination and found no changes in the fundus, except possibly a slight œdema of the retina near the nerve. Three weeks after this her sight was perfect. She also recovered entirely from her nephritis.

CASES OF RETINITIS ALBUMINURICA.

Case IV.—Miss D., German, aged twenty-five, always supposed herself to be in perfect health until January, 1885, when after exposure to wet and cold she noticed that her urine was scanty and high colored. Six months from that time she was seized with severe and constant headache, chiefly occipital, attacks of dyspnœa, œdema of the feet, and slight blurring of sight. These symptoms led to a careful investigation, when it was found that she had chronic Bright's disease, hypertrophied heart, and neuro-retinitis albuminurica. The eyes externally looked normal, the pupils were equal in size and responded readily to light; V. $= \frac{20}{XX}$. At times, however, she said that things looked hazy. The media—*i. e.*, aqueous, lens, and vitreous—were as transparent as in health.

The optic nerve was slightly swollen, its edges

were blurred, the retina had an indistinct look as if I was examining it through a thin veil, but the most striking appearances were two groups of white spots scattered over the fundus. The first group was to the temporal and upper side of the optic nerve, covering a space the size of the optic papilla; the second was grouped about the macula in a crescentic arrangement, looking as if spattered into it by a paint brush, the veins were slightly enlarged, but there were no marked changes in the arteries. This description answered well for both eyes.

From this examination a diagnosis of neuro-retinitis albuminurica was made. It was the second stage of the disease, and so characteristic was it that, taken with the persistent headache, swollen feet, and hypertrophied heart, morbus Brightii could have been predicted without a urinary examination being made. I do not mean to state that the changes in the retina were pathognomonic, because a few cases have been observed where this condition existed without kidney disease having been proved present, but I do mean that, when seen, the kidneys should be at once investigated; but when this appearance is accompanied by the group of symptoms named—*i.e.*, persistent headache, nausea, œdema of the hands and feet, hypertrophy of the heart—a diagnosis of chronic Bright's disease can almost positively be made, irrespective of a urinary examination.

These appearances once clearly seen even by the tyro in the use of the ophthalmoscope, would leave him not faultless if, seen a second time, they did not suggest an examination of the kidneys. In the first and last stages of albuminuric retinitis, the picture is not so distinctive or suggestive. In the first stage all that can be noticed is a fulness of the retinal veins, an increased redness of the nerve, which soon passes over into a decided neuro-retinitis (in a case now, February, 1888, under observation, there are a few feathery retinal hemorrhages, with no swelling of the nerve), the veins becoming larger, more turgid, the edges of the nerve are lost to view in the œdematous swelling of the connective tissue of the head of the nerve, and by the development of new bloodvessels. The retina is noticed to be dotted with minute white spots, both in the neighborhood of the nerve and the macula.

If the disease continues to progress beyond this point, these spots increase in size, and coalesce, covering the retinal vessels in their neighborhood, and thus form a uniform mass of exudation. At this stage, and even before, hemorrhages make their appearance; if these are small, they are situated in the retina, causing immediate damage to the sight, according as they are situated at or remotely from the macula, and, as a rule, slowly disappear by absorption; if large, they sometimes break through into the vitreous, causing immediate and marked failure of the sight, thus simulating the amblyopia without lesion.

Where the hemorrhages are in the periphery of the retina, their presence may cause no inconvenience to the patient, and may escape the observation of the physician, unless carefully looked for. The nerve may become very much swollen, as in a case now under observation, in which the apex of the nerve can be seen with + 7 D., the macula being emmetropic. If life is sufficiently prolonged, partial atrophy of the optic nerve may result. In favorable cases, as in morbus Brightii from pregnancy or scarlatina, where the patients entirely recover from their kidney trouble, a retrogression of the eye symptoms takes place, and if the nerve has not suffered too much from the swelling, and the hemorrhages have not involved the neighborhood of the macula, complete recovery may take place.

The greatest danger that menaces a patient sick with Bright's disease is uræmia. In other words, the patient is in danger of poisoning by the retention in the system, not of the urea alone, but of all the urinary salts, and of having developed in his body that train of symptoms which has been included under the term uræmia. This danger and these symptoms vary according to the condition of the patient at the time the symptoms are first noticed, and according to that part of the system on which the brunt of the attack falls. If the case is one of acute Bright's disease—in other words, if the patient's system has not been accustomed to the presence of urinary salts, except in the normal amount—a day or two may permit the most serious uræmic phenomena to be developed, the urea in the blood being only a fraction of that to be found in the blood of a patient sick with chronic "Bright's", who seemingly suffers no inconvenience from it. Uræmic symptoms will show themselves, then, in a given case, more or less acutely, according as the system has been accustomed to its presence or not, and according to the suddenness with which its elimination is stopped.

Where and when uræmic symptoms will first manifest themselves it is never possible to say; whether with dyspnœa, vomiting, deafness, amblyopia, delirium, or convulsions; in other words, whether some one nerve centre may be so strongly affected as to lose its function, or the whole brain be at once overwhelmed by the poison.

Uræmic amblyopia is a failure or loss of sight without any observable pathological changes in the optic nerve, retina, choroid, or refractive media of the eye, and is due to the poison of urea and other constituents of the blood acting on the intra-cranial centres of vision. In uræmia the loss of or failure of sight may be the first symptom noticed, and the other symptoms may readily follow, or we may have first the headache and then failure of sight, or we may have convulsions, and loss of sight be first noticed as the patient recovers from the coma. In this last instance the patient's mind may recover

sufficiently to express the fact that blindness exists, and yet memory be in abeyance, and on complete recovery no memory of loss of sight remain.

In regard to the onset of the amblyopia it is generally sudden, a few minutes or hours being sufficient to blot out all perception of light: but it may be first noticed as a fog between the patient and surrounding objects, which gradually deepens until sight is lost. In other cases the sight is often only slightly impaired, and that for a short time. In this particular it differs from diabetic amblyopia, which may be permanent. In regard to the duration of this trouble it can be stated that, as a rule, it develops suddenly, and disappears suddenly, exceptionally it is very slow in its progress. The prognosis is, as a rule, good, the sight being completely restored, and relapses are infrequent. I have no record of any case where vision failed to return if life was prolonged. In this respect it differs from albuminuria retinitis, as in this latter sight is scarcely ever restored.

The diagnosis of this condition is especially important. In all cases of sudden loss of sight where the ophthalmoscope shows no lesion, the urine should be examined both for albumen and sugar. I have no figures, nor have I been able to find any record of the frequency with which uræmic amblyopia appears in Bright's disease, but I believe that if all cases were carefully examined for this symptom, we would find it present in over forty per cent. of all cases, while neuro-retinitis occurs in about thirty per cent.; this last may be monocular or binocular, while I know of no recorded case of monocular amblyopia Brightii.

We have thus in the eye exhibited on a small scale the counterpart of the changes that take place extensively in other parts of the body in Bright's disease. The amblyopia is produced in the same way and by the same poison as that which produces headache, dyspnœa, failure of memory, delirium, and, finally, loss of consciousness and eclampsia; all of which symptoms show after death, no changes to account for their development during life. In the eye we can make ante-mortem examination and find the tissues of the retina and choroid normal.

Neuro-retinitis, on the other hand, is produced in the same manner as pleurisy, pneumonia, pericarditis, and cerebral hemorrhages. It is a part of the changes which take place in the vascular system. These two conditions, while totally distinct, may yet coexist in a given case, so that the failure of sight in commencing neuritis may be out of all proportion to the lesion found in the fundus.

I have redescribed these two symptoms of Bright's disease, not simply as curiosities, but because they are of the greatest importance to each general practitioner, as a failure to recognize the functional trouble, and the consequent erroneous prognosis as to the recovery of sight would react unfavorably on the practitioner: while, if its existence is appreciated, we may calm the fears of anxious friends by stating that if life is prolonged sight will be entirely restored; on the other hand, the albuminuric retinitis has been frequently the first symptom that has disclosed the disease back of it. It stands in many cases written out on the fundus as plain as if letters were there in place of the characteristic splashing produced by the fatty degeneration of the connective tissue of the retina; and here the prognosis as to recovery of sight is most serious, and as Bull and Gruening have so clearly proved, the prognosis as to life is most unfavorable.

Conclusions.—The amblyopia of Bright's disease is totally distinct from the loss of sight in retinitis albuminurica, the one being a functional disturbance of the centres for sight in the brain, the other a lesion of the interior of the eye itself.

That while they are often seen separate and distinct, as in the cases reported, yet that they may coexist in one and the same individual.

Every general practitioner should possess an ophthalmoscope, and thus be able to make a diagnosis himself.

A CASE OF PRENATAL, AND A CASE OF POST-NATAL PNEUMONIA.[1]

By BARTON COOKE HIRST, M.D.,
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A few months ago I had an opportunity to study the case of a newborn infant that died shortly after birth from a pneumonia contracted *in utero;* quite recently I have seen an infant, apparently healthy and well developed when born, with no inherited disease, exhibit all the symptoms of a catarrhal pneumonia within a few hours after its birth, which proved fatal in the course of three days. The origin of the disease in the two cases, the clinical history of each, and the post-mortem appearance, contrasted so sharply the one with the other, that a brief description of these cases may indicate the distinctive features in an attack of pneumonia which begins and runs its whole course perhaps *in utero*, and one which is first developed immediately after birth.

Case I. *Prenatal Pneumonia* (Philadelphia Hospital).—An Italian woman, æt. thirty-five, at the time of admission pregnant six months, having for a year past suffered from a large lumbar abscess constantly discharging pus, and exhibiting, during the time she was under our observation, all the signs of general septicæmia, gave birth to a living infant between the seventh and eighth months. The child was tolerably well developed for the period of pregnancy, but was deeply cyanosed, and evidently breathed with difficulty for the few hours that it remained alive. The post-mortem examination showed

[1] Reported to the Philadelphia Obstetrical Society.

no other cause of death than the condition of the lungs, which were as large as though they had been well inflated with air, but in their consistency, weight, and color, throughout all the lobes of both lungs, resembled a liver; placed in water, they sank at once. A microscopic examination showed an enormous overgrowth of fibrous elements, and a desquamative pneumonia in the air vesicles, which were compressed and distorted by the encroachment of the overgrown inter-alveolar connective tissue.

This would seem, therefore, to be the first stage of what is known later as "white pneumonia," when the lung substance has undergone fatty degeneration, and presents a peculiar appearance which is usually regarded as symptomatic of congenital syphilis. There may be cases, however, in which, it seems to me, such a condition might be found, although the possibility of syphilis were entirely excluded.

Geyl,[1] by a series of careful experiments, has shown that when the oxygenation of the fœtal blood is interfered with, the fœtus makes inspiratory efforts *in utero*, with the result of drawing into its lungs a large quantity of liquor amnii; and this author has further demonstrated that the presence of liquor amnii within the lungs, containing, as it does, lanugo, epithelial scales, urine salts, and perhaps meconium, is capable of exciting a catarrhal pneumonia.

Now, in any condition that interfered with the aëration of the mother's blood, or if from any cause the fœtal blood could not be properly oxygenated, there might be an attempt at pulmonary respiration on the part of the fœtus, resulting in catarrhal pneumonia, which ultimately, from the constant irritation caused by the desquamated epithelium and the solid particles held in suspension or solution by the liquor amnii, would bring about the overgrowth of connective tissue that characterizes a pneumonia arising *in utero;* this interstitial inflammation of the lungs, therefore, need not invariably be ascribed to syphilis.

Whatever the explanation of its occurrence, the diffuse nature of an inflammation of the lungs during intra-uterine life will usually be sufficient to distinguish the disease from the same affection arising immediately after birth.

Case II. *Post-natal pneumonia* (Maternity Hospital).—A healthy young primipara fell in labor at six o'clock in the morning, a few weeks ago. With the first few pains the membranes ruptured, and the greater part of the liquor amnii escaped. At half-past six in the evening the os was dilated; at ten o'clock the child was born, slightly asphyxiated, but was soon revived. The mother stated from the first that the child breathed rapidly and refused the nipple; by the third day it was evidently quite ill, and its temperature was found to be 101°. My attention being called to the case for the first time, I found fine râles over both lungs, but no distinct dulness. From its history and physical signs, the case was thought to be one of pneumonia, from the inspiration of blood and mucus during labor. The child died upon the following day. In all the lobes of both lungs were found spots of solidification about the size of a chestnut, the remainder of the lung tissue being apparently healthy. The right auricle of the heart was enormously distended; the foramen ovale was almost completely closed.

Perhaps this form of pneumonia occurs more frequently than is commonly supposed after difficult or tedious labors, and it may be that many obscure cases of fatal disease in newborn infants might be explained if the lungs were carefully examined.[1]

[1] Die Ætiologie der sogenannten puerperal Infection des Fötus und des Neugeborenen, Arch. f. Gynäk., 1880, Bd. xv. S. 384.

[1] Henoch, in his interesting book (Vorlesungen über Kinderkrankheiten, S. 338), refers to a "Schluckpneumonie" from the inspiration of milk while feeding, but says nothing in this connection about the inspiration of the discharges of labor. Schröder, however, in his lectures, was in the habit of referring to this subject at some length. Schultze has actually listened to the respiratory efforts of a fœtus in utero, and many others have heard the *vagitus uterinus*.

WHAT IS A HOSPITAL CORPS?

By JOHN VAN RENSSELAER HOFF, A.M., M.D.,
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A quarter of a century of profound peace has largely rendered latent the costly knowledge which war taught us. A generation has grown since Appomattox put an end to our last and greatest conflict, to which its lessons are unknown; and to-day, should war be declared, it would find us almost as unprepared as in 1861.

Considering the fact that the regular army of the United States is but a nucleus around which the greater army of the people must crystallize when any war comes upon us; and accepting one of the axioms of warfare that the average soldier is made, not born, it behooves us to think, whether we have forgotten how to restore our nearly worn-out ploughshares and pruning-hooks to their original shapes. Quite as important is this question to us of the medical profession as to any other class, for the civil practitioner of to-day will, in event of hostilities, become the medical officer of to-morrow. To you, then, medical officers of to-morrow, is addressed this question, What is a hospital corps?

A leading article in The Medical News of Jan. 28, 1888, states that a hospital corps has been organized in the United States army, and gives an excellent *résumé* of its plan and scope, but the fact that such organizations exist, and have existed for years in all the great armies of the world as an acknowledged factor of the utmost importance, is not generally recognized in this country.

The idea that a company, battalion, or larger body of men, marching in review, is complete in itself, and the final development of active service organization, would hardly now be entertained by

the merest tyro in the art of war. Yet such has been the belief amongst other nations, and such ideas doubtless obtain to-day among our own countrymen who have given, if any, only a passing thought to the subject.

The British army went to the Crimea without hospital corps, without field hospitals, with an untrained medical staff, with no systematic base hospital organization. The result, from a medical standpoint, which might have been anticipated, was utter failure, and the horrors of the Crimean winter of 1854–55 furnish the darkest episode in the history of that war. Our own experience in 1861 was identical, and the outcome would have been the same, had not the whole country risen in compassionate effort to supply the deficiencies in our army hospital arrangements. A glance at the records of the early part of the war, as published in *The Medical and Surgical History* thereof, must convince the most sceptical that in no direction were we then less prepared to cope with the immense problem which presented itself, than in the medical department. The conclusion was grand, but who can tell the amount of preventable suffering through which we passed to reach that conclusion?

One of the outcomes of this dearly bought experience was the organization of an ambulance corps, which served an admirable purpose during the latter part of the war, and with its close, except on paper, ceased to exist. But other nations, profiting by our experience, took up the medical war scheme where we left it, and have carried it to the perfection which characterizes army organization in Europe to-day. A marked advance toward this result followed the development of the German system, in which, commencing on the fighting line, the relation between the regimental medical aid (medical officers), the regimental sanitary detachments (soldiers of the line detailed and instructed as stretcher-bearers), the divisional bearer companies (hospital corps soldiers), the field, communication, and base hospitals, and hospital transports (boat or rail), is clearly defined. But it may be asked, Why this elaborate system? Experience has emphasized the fact, that "any military body, trusting for its medical efficiency to the battalion aid alone, must of necessity come to utter grief when the battalions have to move forward off the battle field, and the sick and wounded must look for attention to other hands than those of their regimental comrades." The combatant soldier's sole function is to fight, and the hospital corps soldier's to care for him when he falls.

It is needless to dwell upon the value of such an organization; twenty-five years ago some questioned it, to-day no one who has investigated the subject can doubt that a hospital corps is essential to a properly organized army. Such a corps cannot, however, be recruited and perfected in a week. There must be officers to teach before men can learn, and the object of this paper is to suggest to the profession, very crudely indeed, a convenient method by which a large number of medical men can profitably, and almost without effort, be taught many of the duties pertaining to the medical officer.

The uniformed militia of the various States furnish the foundation upon which the proposed organizations may be based, and the medical schools the material and means of instruction.

It requires two percentum of the fighting strength of an army to take care of the invalids. Upon this basis there might be organized in each State a hospital corps numbering two percentum of total uniformed militia. This corps should be divided into companies containing say three commissioned officers (medical), thirteen non-commissioned, one musician, and forty-eight privates. It should be uniformed and be an integral part of the national guard, subject to the same regulations, entitled to the same privileges, and raised by recruitment, as are all other soldiers of the guard. But, since the duties of the corps are special, and essentially in the line of medical education, the medical students might furnish the material and the medical schools the means of instruction, thereby adding largely to the scope and usefulness of both, and resulting in mutual benefit to students, school, and country. These companies should not, however, be wholly composed of medical students, but a certain proportion should be recruited from among men in other pursuits, who are anxious to familiarize themselves with "first help" methods, etc.

The proposed hospital corps of the National Guard should be uniformed, equipped, instructed, and drilled in like manner as the hospital corps of the regular army, in order to insure entire unanimity of action between organizations which must serve together in the event of hostilities. It should be officered by medical officers of the National Guard who would be responsible for its proper discipline and instruction, and the corps should always be under control of the medical department. Such an organization would correspond to the divisional (stretcher) bearer companies of the German system. It would not only furnish soldiers trained to meet the surgical emergencies of the battlefield, but also men skilled in the manifold duties pertaining to military hospitals, both field and permanent. In a word, it becomes responsible for the invalid from the moment he falls on the fighting line till restored to health, discharged for disability, or buried with military honors.

In addition to the hospital corps composed of soldiers, as already stated, whose sole function is the care of the invalid, there should be detailed four men from each company of the guard, to be known as company stretcher-bearers, who are to be instructed in "first help" methods, and whose duty will be to

assist in removing the wounded from the fighting line, when they are required to supplement the bearer companies. These soldiers belong to the line of the army, and can only be used for bearer purposes in an emergency.

In the United States Army they are detailed by the company commanders, with concurrence of the senior medical officer, are excused from no company duty, and are only under control of the medical officer when in the actual performance of bearer duty. They in no sense belong to the hospital corps, and correspond to the regimental sanitary detachment of the German system.

The course of instruction may be outlined as follows:

1. Infantry drill through the school of the company. It must ever be remembered that the men of the hospital corps are soldiers, identical with the soldier of the line in every respect except as to their special functions, and that their efficiency largely depends upon their discipline. Ordinary drill promotes discipline, as well as lays the foundation upon which are based the stretcher and ambulance tactics. This drill is conducted by medical officers in foreign armies, who are taught to be soldiers as well as surgeons. In our own, the enlisted man is required to serve a year in the line before transfer to the hospital corps.

2. First aid to wounded, embracing elementary anatomy and physiology. Treatment of fractures, dislocations, and sprains (including improvising of splints and dressings).

Arrest of bleeding.

Transport of injured.

Resuscitation of apparently drowned.

Nursing.

Names, use, and care of surgical instruments.

General principles of sanitation.

3. Stretcher drill, the lifting, carrying, and lowering of wounded.

Command of aid parties at accidents, or in the field.

Improvised methods of carrying injured.

Structure and loading of ambulance wagons, and the utilization of ordinary wagons for carrying wounded.

Loading and unloading of mule cacolets and litters.

Loading and unloading of ambulance railroad trains, and the manner of arranging cars for carrying wounded.

Battlefield aid, formation of dressing stations, field hospitals, etc.

Camp kitchens, and cooking.

The general duties of a hospital corps soldier in the field.

4. The proper method of organizing so-called permanent hospitals during active service, discipline, nursing, cooking, water supply, ventilation, washing, dispensing of medicines.

The care of public property, keeping of records, accounts, etc.

Rendering of returns and reports.

Army regulations and orders; particularly those pertaining to the medical department and hospital corps.

It can hardly be denied that great advantage would result to the country as well as to the individual, could there be a general dissemination among medical men of a practical knowledge of all these subjects, which make the army medical officer a specialist, in the broad meaning of that word.

It is quite true that many medical men may not be called upon to use it, but the probabilities are largely in favor of the opposite conclusion. Certainly should war come to us—and come it must—the profession of the country would be largely responsible for its medical results.

Must we then, again, begin "without hospital corps, without field hospitals, with an untrained medical staff, with no systematic base hospital organization?"[1]

Fort Reno, Indian Territory, February, 1888.

MEDICAL PROGRESS.

Three Recent Interesting Cases of Brain Surgery.—At a meeting of the Surgical Section of the Royal Academy of Medicine on Friday last, three successful cases of trephining were reported, and the discussion upon the papers was adjourned to a future night. These cases were all remarkable. Prof. Thornley Stoker read particulars of a case in which a man fell from a cart while drunk. He came to the Richmond Hospital some days later, rather stupid, and with some lightly marked paralytic symptoms. It was not easy to determine whether he had not had an attack of apoplexy. The paralysis becoming more marked, Mr. Stoker trephined in the region of the fissure of Rolando—there was no fracture—and struck the margin of a blood clot. He again trephined and more fully exposed the clot, which was washed out. The area so compressed was about three inches, and the clot measured nearly an inch in depth. The patient recovered and was exhibited. Sir W. Stokes read a paper on a case of successful trephining for cerebral abscess, and exhibited his patient. The man had been struck with a poker on the left side of the mesial line of the head, and about an inch anterior to the coronal suture. He was treated as an out-patient at another hospital, but ultimately applied at the Richmond, when he was admitted, several weeks having elapsed from the date of the injury. He soon presented brain symptoms, became convulsed and comatose, and it was determined to trephine. A

[1] The substance of this paper was embraced in a report to the Adjutant-General of the State of New York, with view to the formation of a hospital corps in the National Guard of that State.

An order for the detail and instruction of company bearers has already been promulgated, and it is hoped that ultimately a distinct hospital corps will be organized on lines herein indicated.

small fracture was found under the scar; the dura mater bulging into the wound, an exploring needle was introduced to the depth of an inch and a half, and pus was at last found. The dura mater was then incised, and one ounce and a half of pus was evacuated. The patient completely recovered, and is now attending to his ordinary work. The paper noted eleven other cases of abscess which had been operated upon by various surgeons, and discussed the questions involved. The third case was brought forward by Dr. C. B. Ball, of Sir Patrick Dun's Hospital, and the patient was also produced. The lad had been struck with a small knife over the squamous portion of the left temporal bone ten days before admission. The wound was healed, but he had some aphasia. Pain in the head and ear supervened, and the aphasia increased. It was determined to explore. He was trephined some weeks after the original injury. A wound was found in the dura mater corresponding to the puncture of the bone. A sinus forceps was passed in, the wound opened up, and some blood clot escaped. The patient was decidedly better, but next morning he was again aphasic. The wound was washed out, and more blood clot escaped. The aphasia almost disappeared, but two days later it returned, and the wound was again washed. After this the patient progressed favorably, and is now well. Dr. Ball pointed out the *rôle* of the brain lesion, as indicated by the various symptoms of aphasia. The group of cases was a very remarkable one, and the record of them cannot fail to influence the views of surgeons on the subject of brain surgery.—*British Medical Journal*, March 3, 1888.

The Treatment of Diphtheria by Creasote.—LEGROUX, in the *Archives de Laryngologie* of February 15, 1888, reports the following methods of treating diphtheria by creasote:

By atomization—

Creasote (1 to 100)	1 quart.
Alcohol	2½ drachms.

Pencilling the throat every four or five hours with

Glycerine	℥ 5.
Alcohol	℥ 2½.
Creasote	♏ 15.

Hypodermatically, in very severe cases—

Sterilized olive oil	parts 9.
Creasote	part 1.

From 1 to 3 minims of creasote may be injected into the hypochondrium.

Sixty-eight patients were treated, of whom thirty recovered; among those tracheotomized, one in three recovered.

The Medical Treatment of Typhlitis.—BOUCHARD advises morphia to quiet pain, with belladonna plaster locally, and large poultices over the painful part. Hot water enemata twice daily of a quart of water, to which are added sodii borat. grs. 75, and two or three teaspoonfuls of the following mixture: Tinct. benzoin, alcohol, camphorat. equal parts. Absolute rest must be enjoined. Purgatives should be used with great caution, magnesia is suggested.

For diet milk and lime water, in small quantities, to which is added a little yolk of egg—in short, food leaving little residue and not favoring fermentation. If the affection becomes chronic small blisters are beneficial—*Revue de Thérapeutique*, February 15, 1888.

Fatal Injury from Fall on the Feet; "Water-hammer" Shock.—BENJAMIN WARD RICHARDSON reports, in the *Medical Press* of February 22, 1888, the following interesting case: The first illustration of the kind to which my attention was specially directed occurred whilst I was one of the physicians to the old Blenheim Street Dispensary, an institution now long since of the past. A glazier who was repairing a first-floor window near the dispensary, slipped and fell; he came down upon the pavement straight upon his feet, "like a cat," as one of the witnesses said at the inquest, then he dropped to the earth and was taken up dead.

I was seeing the out-patients at the time of the accident, and was called to the unfortunate man. He was lifeless when I arrived, and although his fall had not been more than fourteen or fifteen feet, at the most, he was said to have died instantly, without the slightest trace of bruise or fracture of bone. He was considered a healthy and very steady man, and, except that he was of rather small stature and light build, he was well-shaped and strong. On the following day I made the post-mortem examination of his body. There was no external sign of injury, and every internal organ, including the brain, was quite natural except one. The pericardium was filled with coagulated bright red blood, which had escaped into it from a small rupture in, or rather through, the aorta immediately above the aortic semilunar valves. There was no evidence of structural disease in the coats of the vessel, and the rupture itself was nearly round, with smooth edges. It was about the size of a lace-hole in a shoe, and would have admitted a good-sized crow-quill; it was just above the centre of one of the segments of the aortic valve.

The cause of the fatal rupture in this case was due, I have no doubt, to a simple physical concussion, the like of which is sometimes met with in common machinery. When, suddenly, we turn the tap of a cistern of water, at a time when the water is running down the tube, we hear a noise—a smart rap—which working-men call "the water-hammer." Occasionally, at the moment when this noise is heard, the pipe bursts just above the stopcock, owing to the sudden arrest of the flow and the resultant pressure. It is precisely the same in the aorta under the circumstances detailed in the case of the glazier. The whole of the blood of the body in its course out of the left ventricle—with the exception of the little quantity which goes to feed the coronary circuit—has to ascend through the first part of the aorta, and when the semilunar valves close up below it the artery undergoes great dilatation. Ordinarily, the resiliency of the arterial tube is sufficient to meet the pressure, but if at the moment of strain there comes a percussion that will bring the volume of blood back upon the valves the water- or, in this example, the blood-hammer-stroke comes down with effective force, and either distends the segments of the valves driving them downward toward the ventricle with considerable tension and strain, or the arterial coat is torn. As a rule, nothing more happens than distention of the vessel; as an exception, the vessel gives way and the pericardium is filled, rapidly, with blood.

The Dangers of Simple Extraction of Cataract.—Derby, of Boston, in the *Boston Medical and Surgical Journal* of February 28, 1888, calls attention to the dangers of cataract operations, as follows:

The question as to what operation should be performed in an ordinary case of senile cataract is once more a prominent subject of discussion. At the late meeting at Heidelberg, as well as at the one held at New London, this matter engrossed much attention. More recently, Professor Schweigger, of Berlin, has published in Knapp's *Archives* an article on the return to the flap operation, in which the performance of iridectomy, the "needless maiming of the iris," as the author expresses it, is strongly denounced.[1]

The question at present under discussion is, therefore, the following: Do the modern discoveries of a reliable myotic, of an efficient local anæsthetic, and the adoption of antisepsis, justify a return to the principle of extracting senile cataract without the performance of iridectomy?

May not the operation, however, be restricted to certain cases, and are not certain special rules to govern the after-treatment? The writer has laid down the following principles for his own guidance:

1. He would reserve simple extraction for those cases in which the cataract is ripe, the nucleus large, the patient tranquil and amenable to discipline.

2. After the operation, the application of the bandage should be slightly delayed, the object being to ascertain whether the iris, once replaced, shows any tendency again to prolapse. If it does so, it is to be at once excised.

3. Eserine is to be applied directly to the eye immediately after the operation, and dropped in the inner corner of the eye, without separating the lids (as recommended by Schweigger) for the three following days.

4. Greater quiet on the part of the patient is to be insisted on than has been the case after the operation of Gräfe.

5. The eye needs to be inspected much sooner, certainly by the end of the third day.

And even if these or similar rules be followed, Derby cannot resist the belief that for the average surgeon, and in the present state of our knowledge, simple extraction at the best involves an element of danger that is wanting in the method of Gräfe. The successful extraction without iridectomy is uequestionably the more brilliant of the two methods, and the patient thus cured a more striking exemplification of surgical skill. A greater familiarity with the new operation may cause the risk to assume inconsiderable proportions. But some risk is likely always to remain. It is like the old question as to the relative advantages of ether and chloroform: the latter easier to transport, pleasanter to take, quicker in its effect, and occasionally alarming in its consequences.

The Treatment of Hydrophobia by Hyposulphites.—Newth describes his use of these remedies in septicæmia and kindred disorders as follows: I am in the habit of prescribing the hyposulphites in combination with bicarbonate of soda and sulphate of magnesia in peppermint-water. For children I simply give it with syrup and caraway-water. Though my experience is not sufficient to establish the value of this remedy decidedly, it is so far satisfactory that I unhesitatingly prescribe it in any cases where there seem to be symptoms of blood-poisoning. In aphthæ, for instance, it seems to work like a charm, and in boils, scrofulous abscesses, etc., it really appears to do great good. I have also prescribed it with success in diphtheria and puerperal fever. It seems to me that, as hydrophobia is without doubt a form of septicæmia, the hyposulphites might do good in this terrible disease. They certainly could do no harm, and, therefore, I would suggest a fair trial of this remedy, not only when the disease has developed itself, but as a prophylactic. After a bite by a mad dog I would give five or ten grains of the hyposulphite of sodium or magnesium (the latter is richer in sulphurous acid) for the first three or four days every four hours; then three times a day for a week; then twice a day for another week; then every morning early for one month; recommending a Turkish bath twice a week. When the disease has developed I would prescribe the hyposulphite every hour or every two hours, with vapor or dry hot-air baths, or prolonged warm-water baths containing some hyposulphite in solution. The hypodermatic injection might also be tried, especially if the patient is unable to swallow. In other cases the sulphurous gas might be given per rectum. By such means as these I firmly believe hydrophobia may be cured, and trust that those who have the opportunity to do so will try them.—*Lancet*, Feb. 18, 1888.

Convenient Combinations for Administering Hydrochloric Acid in Dyspepsia.—The *Revue Générale de Clinique et de Thérapeutique* of February 9, 1888, contains a number of formulæ for the administration of hydrochloric acid, from which we take the following:

Hydrochloric acid lemonade:

Aquæ	O1¾.
Syrup. simpl.	℥ 25.
Acid. hydrochlor.	♏30 to 60.
Spirit. limonis	♏ 15.

A half glass or glass after meals.

A digestive and laxative potion may be ordered as follows:

Acid. hydrochloric. . . .	♏ 15.
Syrup. simpl.	℥ 7½.
Vini rhei	℥ 25.

Of which the dose may be varied as indications demand.

Hydrochloric acid and cocaine may be given as follows:

Syrup. menth. piper. . . .	℥ 7¾.
Acid. hydrochloric. . . .	♏ 15.
Cocain. hydrochlorat. . . .	gr. 1½.

Which is prescribed by Huchard in varying doses for gastric pain in eating.

West prescribed for children the following mixture, in doses of one to two small teaspoonfuls:

Acid. hydrochloric. dil. . .	♏ 15.
Syrup. aurant. cortic. . . .	♏ 75.
Tinct. aurant. amari . . .	♏ 45.
Infusion. cascarillæ . . .	℥ 10.

Hydrochloric acid is given to increase the acidity of the gastric juice; to dissolve phosphates and alkalies; to contribute to the formation of chloride of sodium in the

[1] Archives of Ophthalmology, vol. xvi. p. 455.

organism. In general terms, it is given before meals to assist in overcoming gastric atony; after meals to remedy hyper-alkalescence.

The Influence of Various Foods on Respiratory Activity.—Richer and Hanriot conclude from their experiments that the taking of food, especially the hydro-carbons, greatly increases the gaseous interchanges of respiration. Nitrogenous and fatty foods affect respiratory changes very little. Food rich in substances forming gases absorb oxygen freely and produce carbon dioxide abundantly. Muscular activity or repose affects gaseous interchanges in no great degree.—*L'Union Médicale*, February 18, 1888.

Suicide with a Pin.—Thomson reports in the *Medical Press* of February 22, 1888, the following extraordinary case:

The deceased was admitted to the Richmond Hospital, but was found to be dead. He had been arrested as a lunatic running about the street in his shirt. On examination of the body, the head of pin was discovered in the fifth intercostal space, two and a half inches from the nipple—downward and inward. The pin had traversed the pericardium, and wounded the anterior wall of the left ventricle. The pericardium contained seventeen and a half ounces of blood fluid, and there was a small rent in the wall a quarter of an inch in diameter, which was filled by blood clot. The surface of the ventricle in contact with the pin was torn to the extent of nearly an inch; a small vein was also wounded; all the internal organs were congested; the urine was albuminous.

Death from Sepsis after Perineorrhaphy by Tait's Method.—Mundé, of New York, in commending Tait's operation and describing successful cases, reports a case of septicæmia, which occurred as follows:

Last December a patient presented herself at my office with a large complete laceration of the perineum. I admitted her into the Mount Sinai Hospital, and on December 28th did Tait's operation, under the most careful antiseptic precautions, irrigating the wound frequently with a 1 to 10,000 sublimate solution. Deep silkworm gut and superficial catgut sutures were used. The patient had a slight rise of temperature, and complained of much pain on the next day, but as there were no local evidences of inflammation I attributed the symptoms to nervousness (she was very hysterical) and reaction from the operation. I was then suddenly taken ill and confined to the house for three days. A messenger sent to the hospital brought me the news that the patient had a slight rise of temperature, but did not seem very ill. But as soon as I saw her, when able to go out, on the fifth day after the operation, I recognized septic infection, and at once removed the stitches. A large yawning, sloughing cavity presented itself, which was diligently and frequently irrigated, and the patient stimulated by all possible means; but she died of a low form of septic poisoning on the tenth day after the operation. Out of several hundred perineorrhaphies performed after the old method no such accident, indeed no febrile reaction had occurred to me. I do not see how I could have operated more aseptically; it is true, the stiches should have been removed sooner, and would have been had I been able to see the patient. But septic infection ought not to have occurred at all. I have heard of its taking place in the practice of other operators, but I had so far escaped, and I did not wish to destroy the success of the operation when septic infection was yet doubtful. Still, the fact remains that so deep a wound into so highly absorbent tissues may be more liable to septic influences than the more superficial wound of the old operations.

My confidence in Tait's method is, however, so strong that I propose to perform the operation next week; but I shall most carefully watch for a rise of temperature, and rather remove the sutures early than risk the life of my patient from septicæmia. I would add one caution, and that is, not to divide the recto-vaginal septum to a greater depth than half an inch, which gives a large enough surface for union.

Antiseptics for Use upon the Skin.—The *Revue Générale de Clinique et de Thérapeutique* of February 23, 1888, gives the following formulæ for antiseptics appropriate for use upon the integument:

A lotion—

Acid. thymic.	1 part.
Alcohol.	4 parts.
Aquæ destill.	ad. 1000 parts.

Glycerole of boric acid—

Glycerole of starch	10 parts.
Boric acid	1 part.

For chafing and perspiring feet:

Acid. salicyl.	3 parts.
Starch	20 parts.
Powdered chalk	87 parts.

may be employed.

Cocaine in Urethral Operations.—Dr. Alexandro Settier gives in a Spanish medical journal his experience of the employment of cocaine as a local anæsthetic in operations of various kinds on the urinary organs. He has used it in nine cases of internal urethrotomy, one divulsion (forcible dilatation), two urethro-perineal fistulæ operations, one rapid lithotrity, three circumcisions for complete phimosis, and two extirpations of vegetations. In none of these eighteen cases has he observed any serious toxic symptoms such as have been described by Peck, Reich, Bellyarminoff, and Keyser. In three cases, however, the patients complained of severe headache and great dryness of the mouth. The solutions used were generally of the strength of 5 or 6 per cent. For internal urethrotomy a variable quantity (in one case as much as five drachms) of the solution was introduced into the urethra, as near as possible to the seat of the stricture, by means of a catheter in the form of a simple tube open at both ends. This solution was allowed to remain in contact with the tissues for twenty-five minutes before the operation was commenced. In all cases of this description the cocaine succeeded admirably, the patient feeling no pain at all except at the moment when the stricture was divided, and then only in a very slight degree. The action of the drug was much less satisfactory in the single case of forcible dilatation, but the pain lasted a much shorter time than it does in similar cases where no anæsthetic is employed. No effect was produced in the cases of urethro-perineal fistulæ. In the lithotrities, circumcisions, and the opera-

tions on preputial vegetations very good results were obtained. In the two latter classes of cases the cocaine was combined with glycerine or vaseline in the proportion of 1 to 15; this was applied over the surface of the prepuce. In one of the phimosis cases an 8 per cent. solution was likewise injected under the prepuce. This, however, caused a good deal of headache. Dr. Settier remarks on the importance of keeping the solution a long time in contact with the mucous membrane of the bladder in cases of lithotrity, in order to prevent contractions of the organ taking place during the process of aspiration.—*Lancet*, February 25, 1888.

Punctiform Parenchymatous Hemorrhage in Railway Injuries.—Vibert, in a recent medico-legal study of railway injuries, reports an interesting observation in an accident on a French railway. Among eighteen persons killed were five whose bodies presented no fracture, wounds, dislocations or external lesions. Post-mortem examination revealed appearances in the tissues resembling the phenomena of asphyxia, and in particular very numerous punctiform hemorrhages in the viscera and tissues of a portion or the whole of a segment of the body. This phenomenon was also present in cranial fractures. Vibert considers it due to lesions of the nervous centres, probably the medulla.—*Gazette Médicale de Paris*, February 18, 1888.

The Mode of Action of Corrosive Sublimate in Poisoning.—In exhibiting before the Berlin Medical Society specimens from cases of poisoning by corrosive sublimate, Virchow explained its effects as follows: He had raised the question, How it happens that in one case of sublimate poisoning deposition of lime takes place in the kidneys, and in another not? This depends on the mode of poisoning. When an animal is poisoned with sublimate, a distinction may be drawn between two factors: 1. The animal receives an injury from the sublimate as such, which may be compared with any other metal, such as gold, iron, etc.; and, 2, by the sublimate the tissue change is altered, the quality of the blood undergoes a change, its alkalescence is diminished by lactic acid, which at once appears in it. Lactic acid is a great enemy of the bones, prevents their formation and dissolves them. Sublimate forms lactate of lime, and this is excreted through the kidneys. This excretion takes place through sound kidneys; by the introduction of the poison, however, they become diseased, and as the excretion cannot be effected under these circumstances, the lime salts remain (retained in the kidneys), and the patients die, not because they have lime in the kidneys, but they have died, and had lime in the kidneys. In these cases the question is one of the amount of lactic acid, and the condition of the kidneys.—*Medical Press*, February 22, 1888.

Antipyrin and Cocaine, for Dental Anæsthesia.—Martin has obtained good results by injecting this solution into the gum about a painful tooth:

Cocaine hydrochlorat.	$\frac{3}{5}$ gr.
Antipyrin.	6 grs.
Aquæ destill.	30 ♏.

The effect is obtained more slowly than when cocaine is used alone, but continues longer, and the risks of cocaine are avoided.—*Revue Gén. de Clin. et de Thér.*, February 23, 1888.

Forced Respiration in Profound Narcosis.—Fell, of Buffalo, reports a case of profound narcosis from which the patient was rescued after thirty hours of constant labor. Artificial respiration failing, tracheotomy was performed, and forced respiration by a bellows-apparatus devised by Dr. Fell was performed. Life was saved, in the opinion of the reporter, by this means. This is the third case so treated by Dr. Fell, with successful results. —*Buffalo Medical and Surgical Journal*, March, 1888.

The Use of Mercury in the Early Stages of Syphilis.—Jonathan Hutchinson writes as follows in a paper on this subject in the *British Medical Journal* of February 25, 1888: My wish has been to draw attention to a clinical fact which, although hitherto much ignored, or even denied, must have been for a long time more or less under the cognizance of all engaged in the treatment of syphilis according to modern rules. The fact to which I refer is that the early use of mercury does not only greatly shorten the duration of the primary phenomena, but that it also much modifies, and in many instances entirely prevents, those of the secondary one. I have, indeed, ventured to assert that, when circumstances favor the febrile stage of the exanthem, syphilis may be rendered wholly abortive. If we can accept this proposition, I feel sure that we shall have gained a step in the orderliness of our future work.

Ergot of Oats.—Bousquet has observed, in the province of Oran, the effects of this substance as used by the Arabs. It is commonly employed by native accoucheurs and Arab women for the purposes for which we employ ergot of corn or rye.

Bousquet employed it in nine cases, in the form of powder, for uterine atony and hemorrhage. Its specific effects were as pronounced as those of corn ergot, and in addition it exerted a general tonic effect which was most salutary.—*L'Union Médicale*, February 19, 1888.

Poisoning by Antipyrin.—Jennings reports, in the *Lancet* of February 25, 1888, the following instructive case:

Miss X., sixty-seven years of age, consulted me for rheumatoid arthritis, affecting chiefly the hands. Her maternal grandfather was gouty, and she has always suffered more or less from arthritic symptoms in the knee-joints. The heart is peculiar in that it normally beats only about thirty-five pulsations to the minute. This lady has recently complained of swelling of the hands, without positive pain, but with sensations of pricking, which interfered with her usual occupation, that of preparing and classifying specimens relating to natural history. (It may be mentioned that she is a distinguished conchologist, well known in scientific circles.) I recommended her to take antipyrin, which seemed to be the more indicated as she had already been relieved on a former occasion of rheumatic troubles by salicylate of soda, which had, however, left her greatly weakened. The treatment was commenced on January 23d, and for eight days she took thirty-seven and a half grains of antipyrin daily, when on the 31st she was surprised to see that she was covered with erythematous patches on the arms, and at the same time felt that her eyes were uncomfortable.

The following night she scarcely slept at all; the feet were icy cold; no nausea; no giddiness. The next morning she discovered that her face was red and extraordinarily swollen. The eyelids were almost closed by the swelling, and left only a narrow slit for vision. Pushing her investigations further, she saw that the rash was general and of the color of pomegranate, arranged in patches the size of a threepenny piece, separated one from another by intervals scarcely noticeable at first sight, but distinctly recognizable upon closer examination, and about a millimetre in diameter. The patient had no appetite, and did not attempt to eat; she only took a small quantity of tea during the day, which she passed sitting by the fire. Curiously enough, this condition gave rise to no suffering; all that was felt was a strange sensation "as if the inside of the body was filled with ice." There was but little itching. The following day the condition was as follows: The eyes, which first attracted my attention, were the seat of slight catarrhal conjunctivitis—already, however, on the decline. There was irritation of the nasal fossæ, and hoarseness of the voice. Indeed, one might have thought of intoxication by iodide. The puffiness and swelling of the face had partly subsided, but the rash remained on the trunk and extremities. The pulse was twice as fast as usual, 76 to the minute; but notwithstanding this, for the patient, almost febrile acceleration, the temperature was lowered, the surface remaining cold. Beyond a slight buzzing in the ears, there was no other sensorial disturbance. As treatment, I merely prescribed small doses of tincture of belladonna. Next day the pulse was 56. The catarrhal condition of the oculo-nasal membrane was decreasing. Since then it has disappeared, and the eruption is gradually passing away. But the patient still suffers from considerable prostration and intermittent sensations of cold.

The Treatment of Whooping-cough.—SIMPSON found the following prescription most successful in treating 240 cases of whooping-cough among coolie children; mortality from the disease, nil:

R.—Acid. carbolic.	. . .	♏j to ij.
Vin. ipecac.	. . .	♏iij to v.
Acaciæ gumm.	. . .	grs. v to x.
Syr. simplicis	. . .	ʒss to ʒj.
Aq. camph.	. . .	ad. ʒj to ʒij.

Every three hours.

—*Provincial Medical Journal*, March 1, 1888.

Cocaine Poisoning.—DÉJERINE is quoted by the *London Recorder* of February 20, 1888, in his description of the following interesting case: The patient was a dentist, twenty-six years of age. M. Déjerine found him in a semi-comatose state, with generalized muscular contraction of the arms and legs. The arms were slightly bent, the legs were stretched out. Patellar reflex action was not discernible, owing to contraction. The pulse was quick, but regular (120); the breathing hurried. The eyes were closed, the pupils dilated and insensible to light. There was complete unconsciousness. The following lesions were detected on the skin: There was a pustular crusty eruption, consisting of pustules the size of a pea, covered with a blackish-gray, dry scab on the anterior external surface of the two arms, and on the anterior part of the legs and thighs. This eruption resembled the scabs of syphilitic rupia. The patient had suffered from blennorrhagia. On returning to consciousness the patient walked about with closed eyes, on account of the painful sensation caused by light on the eyeballs. He gave the following particulars concerning the cause of the attack: Six weeks previously he began to administer subcutaneous injections of cocaine to himself. He began with doses of one-sixth of a grain. He increased the quantity gradually until he employed seven and a half grains. The injection produced agreeable sensations and sexual desires, followed by ejaculation. The evening on which the attack above described took place he had injected fifteen grains of cocaine at ten o'clock. He employed three syringes and a warm solution. At the third injection he fell down in an unconscious condition. On the following day Dr. Déjerine again examined the eruption, which consisted of limited gangrenous areas of the epidermis, resulting from the injections with cocaine, which the patient had introduced into and not under the skin. At the spot where the injections were made white cadaverous spots were apparent; these were insensible to the touch. The patient stated that when M. Déjerine pinched him in different places during the state of coma he was aware of the fact, but that he felt no pain whatever. He was, therefore, sensible to the contact of an external object, but insensible to pain. The patient recovered. He has ceased to employ cocaine. M. Déjerine considers that if the patient had not gradually accustomed himself to progressive doses of cocaine, the dose of fifteen grains would have proved fatal.

Injection of Ergotin into the Tissues of the Cervix Uteri.—SCHUCKING reports, in the *Centralblatt für Gynäkologie*, No. 8, 1888, his method of injecting ergotin into the cervix as follows:

He uses a carefully disinfected needle; the solution of ergotin is freshly made and undiluted, and the quantity is one-fourth to one-third the contents of an ordinary hypodermatic syringe. The needle should not be inserted deeper than a fifth or a fourth of an inch into the anterior or posterior lip of the cervix. He has never seen ill effects, in pain or any injury, follow. He does not favor injections made into the body of the uterus, or into a tumor of the uterus; ill effects reported from such injections he considers due to failure to disinfect properly the needle used.

The Anti-tubercular Action of Iodoform. — ANDRASSY, BRUNS, and NAUWERK are quoted by the *Centralblatt für die med. Wissenschaften*, No. 8, 1888, in reporting their results with the use of iodoform in tuberculous disease, generally in tuberculous abscesses, by drainage and injection of iodoform in emulsions with glycerine. Andrassy treated twenty-two abscesses with ten per cent. iodoform emulsion of equal parts glycerine and water. The injections averaged two or three for each case, repeated in about two weeks, two and a half drachms of iodoform being used at each injection. Twenty of the abscesses treated were permanently cured.

Bruns and Nauwerk cured forty tuberculous abscesses out of fifty-four which were treated. In eight cases portions of the pyogenic membrane were excised and examined for bacilli; these examinations showed a non-irritant, but anti-tuberculous action of the iodoform.

The Medical News.

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SATURDAY, MARCH 24, 1888.

EXSECTION OF EXTRAUTERINE PREGNANT CYSTS.

ALTHOUGH there are forms of extrauterine pregnancy in which the Fallopian tube is not a factor, as is clearly demonstrated by the remote location and attachment of the placenta in well-authenticated cases, the great majority of ectopic cysts will be found to be, or to have originally been, tubal. There is nothing in the inherent vital power of a human ovum, to make an original abdominal development of it impossible; the only thing strange about it is, that this so rarely happens.

An ovum has, prior to its attachment to some vascular base, an independent life, like that which exists in a seed, a bud, and a bird's egg. This life continues long enough for the ovum to travel from the ovary into the uterine cavity, and there form an attachment, by which its independent power of living is no longer required, and it consequently ceases. Is there any reason why this independent living and moving body cannot do in the abdominal cavity what it does in the uterus and Fallopian tube? Heat starts the process of incubation in a bird's egg; take away this stimulus long enough, and its reapplication only produces decomposition; the inherent life is destroyed by the interruption in the development of the bird. Reasoning analogically, a human ovum once attached to the lining of the Fallopian tube, has lost its independent life, and can no longer live, if *entirely* separated and cast out, by the bursting of the said tube; to continue its development below the tube, or within the abdominal cavity, its vascular dependence must not be interrupted; its blood supply is now essential to life. If, then, we find a placenta attached to the abdominal wall on a level with the umbilicus, as in the celebrated Weist operation, of Richmond, Indiana, 1884, we have a right to infer that this placenta did not commence to develop in the Fallopian tube, and was thence transferred to the abdominal wall. The same may be said of other cases that are historical, where the placenta was found at still more remote and singular locations, high up in the abdominal cavity. There are those who would have us believe that all abdominal pregnancies were originally tubal; but this is much more difficult to credit than that some are *ovarian* and others truly *abdominal*, as the great majority believe.

The large majority of cases being Fallopian, and in their early stage of growth capable of exsection without very great difficulty or danger, it becomes a question whether this should not be done to secure the woman against the risk of death from the laceration of the cyst and resulting hemorrhage, an accident which is most common, according to Parry, from six weeks to three months after conception, the height of danger being at eight weeks. More recent observers place this point at ten weeks. In considering this question of the propriety of exsection, as advocated by Martin, of Berlin, and others, we must carefully take up two points of vital moment, viz.: 1. Can the presence of an ectopic fœtal cyst be detected prior to laceration? 2. Shall fœticidal measures be adopted; or the operation of exsection in preference?

We must admit that a differential diagnosis is not absolutely positive; but there have been such diagnoses made, and exsections performed successfully, as we can bear witness to. Mr. Tait denies that a diagnosis can be made prior to rupture, which may be correct so far as his personal observation has extended; but American gynecologists, who have taken time to examine cases historically, as well as by touch, make much more positive claims. A thin hand with long fingers and a delicate tactile sense, are essentials to perfection in examining the pelvic organs. There is certainly a great difference in operators as to their delicacy of touch with a probe, sound, or the finger, and what may be quite possible with one, is impossible with another. Quite recently we heard a surgeon charged with untruthfulness, because he claimed a power in differential

diagnosis by the touch, which he honestly believes, from repeated tests.

Granted that the diagnosis is correct, should the life of the fœtus be destroyed by galvanism, and it be possibly a cause for future trouble, as has several times happened; or should the cyst and its contents be exsected, so that there shall be no foreign body left, as a centre of inflammatory mischief? Recent discussions by leading gynecologists, show that there is a decided opinion held by many, that exsection is to be preferred, in many cases, and particularly where the fœtus is of a size to give trouble. Martin advocates this operation at all ages of the fœtus, and has removed with success to the mother, a moribund child, with much of the cyst and placenta, at seven months.

It should be remembered that it is only in exceptional cases of advanced ectopic pregnancy that *entire* exsection of the sac and contents can be accomplished. This was done in October last, by Breisky, of Vienna, in a case of intra-ligamentous gestation at full period, and both mother and child lived. But in thirty cases of primary laparotomy, for the saving of child and mother, the placenta was cut into in the line of abdominal incision five times. In such subjects the placenta cannot be removed, unless, as in the Breisky case, where it had no attachment to the abdominal wall. In a few instances the sac has been exsected after fœtal death in the latter months of gestation; but here, again, the location of the placenta among the intestines and elsewhere, has rendered its removal impossible, in the great majority of cases. The Martin method will have to be confined almost exclusively to tubal cases, and to these chiefly, in the early months, where its application may become one of much value. Martin is said to have operated upon twenty cases, with excellent result.

SEWAGE IN WATER-SUPPLIES.

One of the most notable papers read at the Sanitary Convention held in Philadelphia, in May, 1886, under the auspices of the State Board of Health, gave a clear exposition of the specific dangers to the public health attending the use of unwholesome water-supplies. The point of greatest interest brought up for discussion was the connection between sewage in water-supplies and the prevalence of typhoid fever.

The influence of a sewage infected with the typhoid cause is, of course, well demonstrated by many and constantly recurring investigations into the origin of local epidemics; but in the paper in question the position was taken, by its author, Dr. Smart, of the Army, that on account of the prevalence of typhoid fever in our rural, as well as urban districts, all sewage entering a river or lake must be regarded as an infected sewage and capable at some time, if not at all times, of spreading the disease by the use of the water from these infected sources. The continued prevalence of typhoid fever in our communities was referred, among other causes, to the use of water which contained sewage; and the medical history of several cities, as Philadelphia, New York, Brooklyn, Boston, Baltimore, and New Orleans, was brought forward to show that the typhoid death-rate is proportioned to the carelessness of a community in regard to its water-supply. It was demonstrated that as surely as a water free from sewage is introduced into a city, in place of that from foul streams or wells in contaminated soils, so surely does the typhoid-rate fall in a manner which leaves but one interpretation, for lest this fall should be attributed to the sewerage system which usually follows the systematic distribution of water, the history of Baltimore, which built no sewers, shows no exception to the general rule. The only way to reduce the typhoid-rate, from 30, 40, 50, or 100, annually per 10,000 living, to the small figure which would represent the action of other and as yet unsettled causes, was held to be by obtaining a water-source untainted by sewage and carefully preserving it from subsequent pollution. As this conclusion ran counter to the interests of the capital already invested by many municipalities in perfecting their water-supplies, the points of the argument supporting it were not utilized in a sanitary campaign against sewage. Indeed, health-officers were afraid to open up the question of sewage-inflow into their streams lest their necessary antagonism to this invested capital should react to the detriment of other suggested sanitary improvements which required assistance for their accomplishment.

And now there comes from the other side of the Atlantic the testimony of Vienna in support of that given by our American experience. The *Revue d'Hygiène* of January 20, 1888, in a paper by M. Mosny, brings up the water-supply of that city for comparison with the ravages of typhoid fever. From 1851 to 1874, while well-water of an impure character and river-water from the Danube were used, the deaths from typhoid fever ranged from about

100 to 340 annually out of every 10,000 living; but the introduction of a spring-water supply in 1874 was immediately followed by a fall in the rates to 50; and the gradual disuse of the former sources has brought the rate for the past three years down to about 11. As the sewerage system was in existence during the period of high rates, the fall since 1874 is necessarily referred to the use of a water which is free from sewage; and this view is strengthened by the occurrence of an epidemic in 1877, which, it is claimed, was caused by a return to the water of the Danube on account of the spring supply failing by the freezing of certain of its sources. The sections of the city affected by the epidemic were those in which the river-water had to be largely used. These facts so impress M. Monsy that he announces water to be the principal agent in the transmission of typhoid fever, and claims that the only thing needful to uproot the disease from a city in which it is endemic, is to distribute a pure water to its inhabitants.

The city that has effected this desirable change comes forward with its experience; but it is too much to expect that others will profit by it so long as the expenditures involved in such a change are not called for by a death-rate beyond that which, preventible though it be, we bear by habit without complaint.

The malady to which the late Emperor of Germany succumbed, according to the *British Medical Journal*, was renal colic, to which he had been subject for several years past.

Bellevue Hospital Medical College, at its annual commencement last week, conferred the degree of M.D. on 144 graduates; the Woman's Hospital Medical College, of Philadelphia, on 27; the University of Buffalo on 44; the University of Nashville on 82; Memphis Hospital Medical College on 54; Miami Medical College of Cincinnati on 21; Southern Medical College of Atlanta, Ga., on 32.

At the annual meeting of the Medical Society of London, held March 3d, it was announced that the Fothergillian prize of a gold medal of the value of twenty guineas, had been awarded to Dr. Hobart A. Hare, of Philadelphia, for his essay on "The Pathology, Clinical History, and Diagnosis of Affections of the Mediastinum other than those of the Heart and Aorta."

We learn, with great regret, that Sir Henry Acland has recently undergone the operation of removal of the left eyeball on account of hemorrhagic glaucoma. We trust that this will not preclude his visit to this country this summer, which, we are informed, he had in contemplation.

In our "News Items," last week, we quoted from the *Lancet* the statement that representatives of M. Pasteur had sailed for New South Wales to enter into competition for the prize of £25,000 offered for the depletion of the plethora of rabbits in that country. Almost simultaneously there comes from the antipodes the announcement that the adoption of M. Pasteur's remedy will be resolutely opposed in some parts of the colony. A government official, by the name of Abigail, has declared his antagonism to the introduction of the chicken-cholera microbe, as being more fraught with danger than the pest of the rabbits. It is possible that the French envoys may have taken their long voyage in vain.

Science has addressed inquiries to twenty-eight medical schools in the United States, asking their attitude regarding the germ theory of disease, and what, if any, facilities for teaching bacteriology each affords. The replies indicate that in but one instance was a positive denial avowed. All teach the germ theory, and demonstrate bacteria to a greater or less extent.

Senger reported at a recent meeting of the Berlin Medical Society that he had examined ten carcinomata by bacteriological methods, without finding a bacillus which he considered in any way a cause of the carcinoma. It is stated that Koch agrees with him in considering Scheurlen's cancer bacillus as a harmless bacillus, growing in the potato-culture material.

Dr. E. H. Bartley, formerly chief chemist to the Brooklyn Board of Health, has reported to the Secretary of the State Board upon the adulterations of spices practised in the spice mills of that city. Among the articles used to mix with pepper, mustard, and ginger, he found burnt nut-shells, charcoal, corn meal, and wheat middlings. This report has proved to be of the nature of a bomb-shell in the camp, as almost nothing is being done in New York State for the sanitation of the food supply.

The Canada Health Journal has become *The Prophylactic*, and has moved its office of publication

from Toronto to New York City. This journal is ably edited and wears the aspect of growing prosperity.

Medical Science, a recently established medical journal published in Toronto, has been received. It will appear monthly; its first number contains several articles by well-known Canadian physicians, and an address by Prof. Vaughan, of the Michigan University.

DR. EDWIN N. CHAPMAN died in Brooklyn, N. Y., March 2d, in his seventieth year. He was born at Ridgefield, Conn., in 1819. He was graduated from Yale in 1842 and from Jefferson Medical College in 1845. He was formerly the Professor of Materia Medica in the Long Island College Hospital, and the author of many pamphlets, and one book, a treatise on "Hysterology" (1872). He was a frequent contributor to the medical journals and to the proceedings of societies. One of his papers, in 1863, on the almost specific power of alcohol over diphtheria, attracted wide attention and a considerable following. His views were reiterated in 1877, when he claimed to have treated eighty-five successive cases of that disease, by alcohol with quinine, with not a death. He was a character of great originality, geniality, and enthusiasm; his quaint sayings were the current coin of the local profession about a generation ago. His death was by paralysis, following an apoplexy that disabled him about two years ago.

REVIEWS.

A MANUAL OF PHYSIOLOGY FOR STUDENTS OF MEDICINE. By GERALD F. YEO, M.D., F.R.C.S. Third American from the Second English Edition. Philadelphia: P. Blakiston, Son & Co., 1888.

THE appearance of another American edition of this well known and useful book is an evidence that it is one of those books which not only receive popular favor by reason of the first impression they produce, but also possess that which many works of its class lack, namely, a clear manner of making a statement and at the same time the advantage of doing this in a concise form. While, owing to its size, general discussions are of necessity left out, the author favors those views most commonly accepted so pointedly, that the student does not find himself at the end of a chapter with a confused jumble of theories, but one dominant idea to which he can cling with some feeling of security. Those of our readers who have used Yeo's book know of its value so well that anything we may say is unnecessary, and we think to the busy practitioner, who wishes to refer to a doubtful point, or to the student who wishes but one fairly positive statement of a fact this manual will prove well worth its cost.

SOCIETY PROCEEDINGS.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

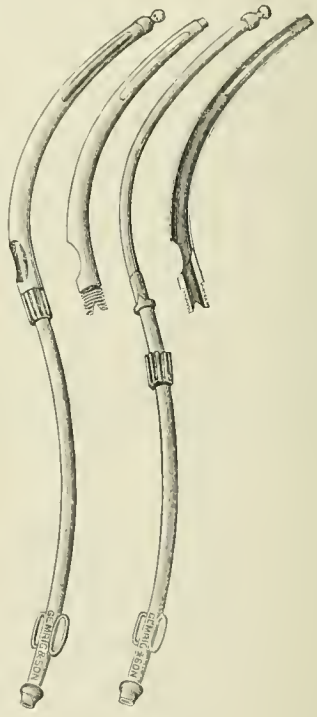
Stated Meeting, March 1, 1888.

THE PRESIDENT, THOMAS M. DRYSDALE, M.D., IN THE CHAIR.

DR. H. A. KELLY exhibited

AN ASEPTIC TWO-WAY CATHETER.

A two-way catheter, which will conduct and discharge water and solutions with the utmost freedom, and at the same time allow of perfect and ready cleansing after use, is a great desideratum. In the light of the antiseptic surgery of to-day, the use of such two-way catheters, as were commonly found in the surgeon's bag a few years ago, is in the highest degree dangerous, owing to the necessarily painfully tedious process of cleansing, and the impossibility of ever being able to assure ourselves that they are clean.



The catheter, as constructed by Dr. Kelly, consists of three parts. First the delivery tube, which conducts the stream from the hose connected with the reservoir into the uterus. This tube is well curved, and at its entrance is furnished with a knob to hold the hose better. Its extremity ends in a button, with a series of holes around and a little below the outer margin in the form of a rose, so placed that the stream is thrown out on all sides, and directed a little backward. The remaining two pieces are the two lateral halves of the *exit* pipe, which are attached very simply by entering at each end in the shallow collar under this *rose*, bringing them together around the inlet pipe and screwing the nut down on the thread on their upper end.

Each side has a fenestra in it, near the point, and is scooped out near its upper end, so that when the two are fitted together, there is a good-sized hole there.

When in use water flies with force from the holes at the end, washes with it débris and fluids, which enter at once the large fenestra on the sides, are washed down and out of this large hole into the receptacle. When out of use the cap is unscrewed, the halves fall apart, and every part which has come in contact with infection is at once exposed and readily cleaned.

The interior ought to be as highly polished as the exterior. Mr. Gemrig, of this city, has made these instruments for Dr. Kelly in a very satisfactory manner.

Dr. Kelly also exhibited a

COTTON PACKER.

Dr. B. C. Hirst showed

A PARIETAL BONE PRESENTING A SPOON-SHAPED DEPRESSION,

taken from an infant that died about two days after birth. The labor had been a difficult one, terminated by the forceps; the child had presented by the vertex in R. O. P. position; the pelvis was slightly flattened; head large, O. F. circumference 36½ centimetres. At the corresponding point internally there was a deep broad depression of the brain substance. The child apparently died from congestion of, and serous effusion into, the brain.

Dr. William Goodell remarked that Ambroise Paré had compared these depressions to the indentations on kettle-drums. The indentation in this case was very typical. After turning in the flat and narrow pelvis, these indentations were very marked. They occupied then the temporal region and not the parietal; the shorter bitemporal diameter being the one implicated. Hence, in turning, two mechanical advantages result, the small end of the cephalic wedge offers at the conjugate and also a cephalic diameter shorter than the biparietal.

Dr. John C. DaCosta wished to know if Dr. Goodell thought turning could always be done in these cases. He spoke of a case which had occurred in his practice where the bone was much more depressed than in the specimen shown. The whole left side of the head was bulged in by a large fibroid of the uterus which fitted into the depression like a mortise and tenon joint. The pelvis was of good shape and roomy, os uteri wide open and soft, and yet the head, which was at or above the superior strait, in L. O. A. position, would not descend on account of the tumor. As the woman was in good condition, and nothing seemed to be going wrong, he let her alone for a time. After a little while, by the aid of some manipulation, the head began to unlock from the tumor, and rotated from O. A. to O. P. position, and the child was delivered alive. This case could not have been turned, as the membranes had ruptured and the uterus gripped the child's body itself, and even if it could have been, there would probably have been a dead baby from pressure on the cord during the long delay that would ensue in delivering the head, as the tumor would most likely have locked under the baby's chin. The forceps could not be put on, on account of obstruction to the left side by the tumor.

Dr. Goodell thought that Dr. DaCosta would have had less trouble if he could have turned the child. He did not think the neck would have been caught. He had been speaking before of the mechanical advantages only, and not of the difficulties in the performance of version.

Dr. Goodell presented

A SPECIMEN OF HYDRO-SALPINX.

It was the largest specimen he had ever seen; although he had met with much larger specimens of pyo-salpinx. The case had been treated by many gynecologists, and the true condition had not been recognized. There had followed the operation a complete relief from pelvic pains, but menstruation had continued up to the present time. The periods were, however, becoming less frequent. Since it is contended by some eminent surgeons, that when menstruation continues after the removal of the uterine appendages, some of the ovarian stroma must have been left behind, he wished to call the attention of the Society to the complete extirpation in this case of both ovaries and tubes. Although the former were more or less adherent, it was evident from the specimen that not a particle of ovarian stroma was left behind.

Dr. M. Price said he had seen two cases in his practice where the menstrual discharge did not cease after the removal of the appendages. In one case it lasted for a year and a half, in the other six months. He had no doubt that Dr. Goodell's case would show the same result. There was but little doubt in the mind of most operators that the removal had not been complete.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, March 15, 1888.

The President, A. Jacobi, M.D., in the Chair.

Dr. Frederick R. Sturgis read a paper on

SOME QUESTIONS IN CONNECTION WITH SYPHILIS HEREDITARIA TARDA.

He remarked that the subject is one of much interest, not only to the syphilographer, but also to the general practitioner, especially on account of its relations to the etiology of many cases met with. In certain instances the agency of syphilis is suspected, without the physician's being able to prove the actual presence of this disease. It is only very recently that the phenomena of late hereditary syphilis have been at all appreciated by the profession. During the last twenty years much has been accomplished in clearing up the matter, but notwithstanding all the advances that have been made in this direction, many points still remain unelucidated. The question is still asked, Can hereditary syphilis remain latent for years? Until recently this was supposed to be a fact in certain exceptional cases of acquired syphilis; but the weight of evidence now shows beyond question that such a thing never occurs. Vidocq was the first to point out this mistake, and it is the generally accepted opinion at the present day in cases apparently of this kind that other and minor manifestations of syphilis always precede the so-called tertiary symptoms. There is always an initial lesion, although no trace of it may afterward be found.

It was at one time supposed that in all cases of hereditary syphilis the disease shows itself at birth, but the fact is now recognized that many cases occur in which

the children are apparently perfectly healthy when born. Statistics show, however, that in a large proportion of cases syphilitic lesions make their appearance before the end of the third month. Of 249 cases collected by Diday and other authorities, the disease showed itself in 118 by the end of the first month, in 117 between this time and the end of the third month, and in 14 later than the third month. Of Diday's own cases, in two the lesions did not appear until after the first year. In instances in which the disease first shows itself at a very late period, the question of acquired syphilis must always be taken into consideration.

The usual history of inherited syphilis, exclusive of those cases in which the child is born with marked lesions, is that after a few weeks or months the earlier manifestations of the disease make their appearance, such as a macular eruption or mucous patches of the mouth and tongue. At this early stage there is usually no eye or ear disease, or affection of the bones or joints. These lesions soon pass away, and there may be no further syphilitic trouble for years, or until the age of puberty is reached; when there may develop keratitis, otitis, disease of the bones or joints, or deep ulcerations in the buccal or nasal cavities. Unless the early history of the patient can be accurately learned, it may be supposed that these late manifestations constitute the first appearance of the disease. Thus, Fournier relates a case in which a man of thirty, who strongly denied ever having had syphilis, became affected with gummous ulcerations of the penis. By communicating with the patient's family physician, however, he ascertained the fact that his mother when *enceinte* with him had acquired syphilis from her husband; that at the age of two years he had had syphilitic disease of the knee-joint and peripheric ulcerations, and that when an infant he had infected with syphilis the nurse who suckled him. At the age of fourteen he had keratitis. The missing links in the history were thus furnished by the family physician. While even the diagnostic sign of the Hutchinson teeth is often absent in such cases, Dr. Sturgis expressed the opinion that in every instance of hereditary syphilis, if the history can be fully ascertained, it will be found that these later lesions have always been preceded by earlier and lighter manifestations of the disease.

DR. E. L. KEYES said that he could state with positiveness that it had not been his experience to see any instances of what could be called late hereditary syphilis. He had met with alleged cases of this character, but in all of them he was able to detect some scar or deformity which convinced him that the lesions referred to were not the first manifestations of syphilis in the system. He had followed up a number of individuals who were known to have had hereditary syphilis, and found that after various periods of latency the disease sometimes broke out again before the age of twenty-one. Before they reached the age of twenty-five, however, when crystallization of the system had taken place, the trouble had been pretty well gotten through with; and he did not recall a single instance in which a new symptom of hereditary syphilis had appeared after this latter age. Still, it is quite possible for us to believe almost anything in regard to syphilis, because it is such an irregular and erratic affection.

The character of the disease in any particular case is also largely a matter of soil; so that he did not believe in a virulent or a benign type of syphilis *per se*. The seriousness of the symptoms would depend to a great extent on the constitutional characteristics of the subject, and in this connection he referred to three brothers, all of whom had syphilis at different times, and in all of whom it produced grave lesions of the central nervous system, which, in one of them, proved fatal. Yet the third of the brothers gave the disease to a young woman, who had it in an extremely light form. The younger the subject, as a rule, he believed, the more serious the disease is apt to be, whether it is hereditary or acquired, on account of the more active changes taking place in the system during early life. Hence, the older the subject, the less serious its effects; and in the aged these are comparatively trifling.

Dr. Keyes then related the case of an infant born under his observation, in which the disease was so markedly developed that he despaired of its life. It shed its nails and had pemphigus of the soles and palms, bad snuffles, and enlarged epiphyseal extremities. He commenced treating it, however, with one-fiftieth of a grain of bichloride of mercury every two hours, night and day, and it soon began improving. At the age of six months now, it was not only alive but thriving vigorously, and it still continued to take the same dose of bichloride every four hours. In future years, if this child should have syphilitic lesions, this early history might be lost sight of, and it might, perhaps, be considered an instance of late hereditary syphilis. It is easy to see how in many instances the early manifestations of the disease may entirely escape observation or be lost sight of. The method of treatment adopted in this case was one which he had worked out some years ago at the New York Foundling Asylum, and he had always found it very satisfactory. It was his usual practice to give a hundredth of a grain of the bichloride every hour, if practicable, and he had not found that it ever produced mercurialization or diarrhœa. In fact, at the Foundling Asylum it often had a salutary effect upon the diarrhœa from which the infants are so apt to suffer.

DR. P. A. MORROW said that the subject under discussion had been comparatively neglected, and that it was only within the last few years that we had begun to appreciate how wide might be the impress of syphilis upon the organism. In many cases it is impossible to get at the history of the individual from birth, and he said he should be very much inclined to doubt whether any patient whatever who manifests the later lesions of syphilis has entirely escaped the earlier symptoms of the disease. Only that day, however, he had examined a girl of eighteen, whose reputation was above suspicion, and who was undoubtedly suffering from hereditary syphilis. She was the subject of many cicatrices, while the soft palate and palatine structures, as well as other portions of the vocal apparatus had been destroyed, and she was completely aphonic; yet, in this instance, it was impossible to get any history of syphilis in infancy.

Dr. Morrow went on to say that he could see no reason why hereditary syphilis should not continue throughout a lifetime, just as the acquired disease is often known to do. It is essentially the same affection. So far as his experience went, there was absolutely no history of the early manifestations of the disease in many cases; but this was, of course, only negative evidence, and it was contrary to his general knowledge of the course of

syphilis to suppose that in any instance the patient had really escaped these earlier manifestations. In conclusion, he referred to the case of an infant affected in much the same way as that mentioned by Dr. Keyes. It was apparently moribund, and it was a wonder that it lived at all. It did live, however, and several weeks later developed into a healthy child. Yet in this instance no medicine whatever was given. He did not wish to depreciate the value of mercury in such cases, but here the mother only was treated.

Dr. Robert W. Taylor said that his conviction was firm that there are always some manifestations in early infancy, though these may be so ephemeral and unaccompanied by distinctive action, that they leave no permanent trace. We may expect the later lesions to appear at almost any time up to about the twenty-first year. In the chapter on inherited syphilis, in Bumstead and Taylor's work, he said that he had placed the normal limit at twelve years (although, as is well known, manifestations of hereditary syphilis occasionally show themselves at a considerably later period), for the reason that he feared that other affections might be confounded with inherited syphilis, which is so comparatively rare at these later ages. Dr. Taylor said that in his work published in 1876, he was the first in America to call attention to the bone lesions of syphilis, and to bring them out of the slough of so-called scrofula. All the way up to the age of puberty we may expect the later manifestations, but when we get beyond the twenty-first year it is pretty hard to say that you are dealing with hereditary syphilis. As a rule, the activity of the lesions occurs before the tenth or twelfth year. Dr. Taylor said that he could not agree with Dr. Keyes in regard to the comparative lightness of syphilis in old people, for in his experience he had found it exceedingly severe and troublesome in such subjects.

Dr. L. Bolton Bangs said that he was in accord with the other speakers in regard to the question at issue. His own observation had been, that almost invariably by careful inquiry and investigation he was able to find some history of previous symptoms; and he mentioned a case of late tubercular syphilide of the face, in a patient twenty years of age, in which he found that there had been unmistakable signs of syphilis in early childhood.

Dr. Chapin mentioned the case of a child of four years in which syphilitic periostitis, affecting both tibiæ, appeared, apparently without any previous manifestations of the disease, as the patient had been carefully watched from birth by its parents. He agreed with Dr. Keyes as to the importance of the soil into which the syphilitic infection was introduced, and said that he had known of many syphilitic infants with snuffles and mucous patches who were fat and robust, and seemed to thrive on the disease. As to the later lesions, occurring in individuals beyond the age of ten or twelve years, he thought they might as well be called scrofula as syphilis. If there were no typical lesions of syphilis present, it was his practice to put the patient on codliver oil and other tonic treatment, as he was unable to tell whether the trouble was really syphilitic or not.

Dr. Alexander S. Hunter related the case of a woman aged eighteen who suffered from extensive destruction of the nasal bones and soft palate, which he believed to be due to hereditary syphilis. He had had the opportunity, however, of interrogating those who had been with the patient from infancy, and they positively stated that there had been no manifestation of the disease until she was fifteen. Still, it was, of course, certainly possible that they might be mistaken on this point.

Dr. L. Emmett Holt related cases in his experience and said that he thought it the easiest thing in the world for the earlier manifestations of syphilis to be overlooked. He then called attention to the importance of enlargements of the epitrochlear glands as a diagnostic sign of the disease. Although this condition may be due to other causes, in his experience very few cases of syphilis occur without the enlargement of these glands.

The President said that when syphilis occurs at birth it is not always easy to recognize positively. There is sometimes great difficulty in distinguishing between a syphilitic and a rachitic bone, or rather cartilage, and particularly when the ribs are affected. If the difficulty is great then, at this early period, it is still greater later on. It is a fact that where a number of children are born in a syphilitic family, the manifestations are apt to become less and less marked in each successive child, and the disease may at last be indistinguishable from the symptoms of so-called rachitis or so-called scrofula.

In regard to the age at which hereditary syphilis first makes its appearance, it is a peculiar fact that the cases first occurring in adolescents or adults are all reported by the older writers, of twenty-five, thirty, or forty years ago. It does not appear that any of the later writers mention any such cases. Thus, Burke says that he never saw one, and Diday, who said the same thing thirty years ago, is still of the opinion that such cases do not occur. Having referred to other authorities, Dr. Jacobi said that probably one reason why the earlier manifestations were apt to be overlooked in former years was on account of the universal use of calomel (an antisyphilitic remedy) in all the diseases of children. Personally, he said he had seen a few cases of late hereditary syphilis. The oldest of these patients was thirteen when the late lesions presented themselves; but in this instance it was easy to trace the disease back to infancy.

Dr. Sturgis said that he had for the most part reserved an expression of his own opinion until the close of the discussion. What he meant by the late lesions of hereditary syphilis were those occurring after the age of five years, and he believed that such late manifestations did not occur without previous symptoms. He mentioned the case of a patient of seventeen who was sent to him for diagnosis with a cold inflammation of the knee-joint, which had resisted all forms of treatment. On careful examination he was able to detect traces of an old keratitis and otitis. The children in whom these late lesions are found are apt to be born apparently healthy, and when the earlier manifestations do occur they may escape notice and receive no treatment. It is in the contracted cases that the later lesions are most liable to make their appearance. At the age of five or six years we are likely to have punctate interstitial keratitis and disease of the joints, ears, etc., and nothing will be found to do any good until iodide of potassium is resorted to. Under this treatment the child usually gets well rapidly. At ten there is apt to be another outbreak of trouble, and about the age of puberty the most serious explosion usually occurs. After the age of twenty-five the disease will generally be found to be acquired. If a patient over

this age presents himself with the earlier symptoms of syphilis we can always suspect that the disease is acquired. The first manifestations of the inherited disease are most likely to show themselves within three months after birth, and always do so within twelve months.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, February 27, 1888.

The Vice-President, Charles K. Mills, M.D., in the Chair.

Dr. William Osler reported the following case of

ENLARGEMENT AND CONGESTION OF THE RIGHT ARM FOLLOWING EXERCISE OF ITS MUSCLES.

J. B., aged forty-eight, white, a robust, vigorous-looking man, applied at the University Hospital on November 4, 1887, complaining of swelling of the right arm when he worked.

His family history was good, and he had always been healthy with the exception of several attacks of sciatica, which he had suffered with lately. He was married and had five children, all healthy. When he was young he had had smallpox. He entered the Navy in 1861 and left it in 1863, and has been a storekeeper ever since. He had gonorrhœa in 1858, but there was no history of syphilis. About two days before he applied at the hospital he began to work as a carpenter, but had to give it up in two or three days on account of the swelling in the right arm. The arm also became tender and blue, but on raising it over his head the swelling and dark color would disappear. There was no history of sprain or injury, and otherwise he appeared to be in excellent health.

Before exercise the measurements were as follows: Right arm, 11.4 inches; forearm, 11 inches; left arm, 10.25 inches; forearm, 11 inches.

The patient was a well-developed, well-nourished man, with chest well formed, sternum a little prominent over manubrium, subcutaneous veins somewhat prominent, those over the anterior aspect of the left shoulder more than the right. His pupils were equal. The heart apex beat was just visible below and inside the nipple. There was dulness at the lower border of the fourth inside nipple line, and the right border of the sternum. The sounds at the apex were clear; first sound at the base somewhat feeble; second distinct, not specially ringing or metallic; and not more distinct toward the right than the left clavicle; no pulsations in the vessels of the neck and no murmur. Radials were equal; no atheroma; no increased tension, and no stiffness in the vessel wall were apparent. The right arm and hand looked larger than normal; and when at rest the skin was the same color in both; the muscles were well developed; the panniculus was the same on both sides. There was no distention of the veins, and no œdema. The brachial artery could be easily felt, and the axillary artery was not very deep on either side. No difference in the pulsations of the two axillary arteries could be detected, and no murmur could be heard in either.

After exercise the measurements were as follows: In a few minutes the right arm measured 11¾ inches; forearm, 12½ inches. It became livid; there was capillary injection, and the distended veins felt like cords. The radial pulse was only just perceptible. Auscultation of the axillary artery gave a distinct murmur not audible on the other side. When the arm was held up the congestion would disappear in a few minutes. There was a feeling of fulness, but no pain. Deep percussion in the upper axillary region was negative. There was no enlargement of the axillary glands; the expansion at the apices was equal. No pain was experienced on deep pressure in the neck. The side of the face did not flush with the arm, and the opposite side was not affected. Percussion was the same on both sides behind.

Dr. Osler wished to place this case on record, as it presented very unusual features. He thought at first that the condition was due to obstruction, perhaps from pressure, on the subclavian or axillary veins, or possibly occlusion with reëstablishment of a collateral circulation sufficient for the ordinary blood flow which occurs during active use of the muscles. There was, however, no evidence of any such obstruction, nor were the veins of the shoulder-girdle distended. The glands were not enlarged; there was no subclavicular dulness, or evidence of disease at the right apex. The condition had remained unchanged during the four months in which the patient had been under observation. He was now more inclined to believe the condition one of faulty innervation of the vessels of the arm during exercise, a defect in the local regulating mechanism controlling the supply and outflow of the blood, the circulation of which is, as we know, enormously increased by contraction of the muscles.

Dr. James Hendrie Lloyd presented the following

REPORT OF A CASE OF RAPIDLY FATAL EXOPHTHALMIC GOITRE.

On August 12th he was summoned to a case which was described as cholera morbus. The patient was a single woman, aged thirty-nine, who had been suffering for some hours with diarrhœa and vomiting. Pulv. opii and plumbi acetat. were prescribed. On the following day the diarrhœa was checked, but obstinate, persistent vomiting continued. This vomiting was quite remarkable, allowing not a morsel of food or even a small quantity of water to remain in the stomach. A careful physical examination failed to detect any direct cause for this. There was slight tenderness in the epigastrium, but no hardness or evidence of any growth; no enlargement of the liver or spleen; no evidence of hernia; no abdominal pain, or any tympanites. A very marked derangement of the vascular system was, however, detected. The whole abdominal aorta to its bifurcation was throbbing intensely, with a pulsation somewhat expansile. The heart's action was rapid, but there were no intracardial murmurs. It was now observed that the patient's eyes were very prominent and staring, which symptom had escaped observation at the first visit on the preceding evening (possibly due to the poor light in the room). Further examination revealed a much enlarged and rather soft thyroid gland.

Careful inquiries were now made of the parents and near relatives about the patient's previous health. They had regarded her as a perfectly healthy woman up to this attack. They had, to be sure, noticed the altered appearance of her eyes, but it had not made much impression upon either them or her, and had not been of long duration. She had had a spell of illness about six months previous, the exact nature of which he could not

determine, but it had been accompanied with some irritability of the stomach and prostration (as she recollected). Since then she had been apparently healthy, bright, and active; had not complained of dyspnœa; and had been out on the day of the onset of the so-called "cholera morbus," for which he had been called to her. The vomiting continuing as the most distressing symptom, a carefully regulated diet was ordered, and tinct. ipecac. gtt. ij was ordered every hour. The pulse was beating as high as 100 per minute.

The patient passed a restless second night. In the morning the vomiting was somewhat relieved, but not gone. The prostration was growing worse, and the case had assumed a threatening aspect. The pulse had risen to 170. Cyanosis of the hands and feet was observed. Consultation was now held with Dr. W. G. Porter, who concurred in the diagnosis. Calomel was ordered in one-half grain doses every hour; ex. opii, gr. ½, by suppository every two hours until quieted; digitalis, which had not been given because of the extreme gastric irritability, was also determined upon; brandy, as much as the stomach would bear. At the evening visit the pulse was found, as nearly as it could be counted, 70 to the third of the minute, 210 per minute. The vomiting had ceased. Ordered one-half ounce of milk, with which tr. digitalis, ♏. x, was to be put, every half hour, the digitalis to be given only every hour after the fourth dose. Collapse was imminent; the patient had had several fainting spells. On the morning of the third day the pulse had fallen to 160, apparently under the digitalis. Dr. Porter again saw the patient. Ex. bellad., gr. ⅓, was added to the suppositories. Later that day the patient's pulse again failed. At the last visit the heart was beating in a very tumultuous way, and no pulse was perceptible at the wrist. The mind was perfectly clear. She died at the end of the third day of her illness.

The autopsy in this case was, unfortunately, not complete, owing to the jealousy of the family, who refused to allow the skull-cap to be removed. He therefore reported it more for its clinical interest than for any light it throws upon the pathology of this interesting but obscure disease. The examination was made by Dr. Dock, in the presence of Dr. Porter, Dr. J. H. Musser, and himself. The heart was a little dilated in the left ventricle, and slightly hypertrophied. The lungs, kidneys, and suprarenal capsules were normal; the liver was not abnormally fat. The stomach was slightly congested, due probably to the excessive vomiting. There were no other abnormal appearances in the chest or abdomen, which were alone opened.

It may be noted that this patient had had urticaria, a fact recorded by Dr. Bulkley[1] in two cases of the same disease. The special interest which attaches to this case, however, is its very acute character and rapidly fatal termination; for while there was some evidence of the disease having been making insidious approaches for several months, it had not impressed its presence upon the notice of either the patient or the family until it culminated in a violent crisis, which quickly deprived the woman of her life.

Dr. Wm. Osler said that these acute cases of exophthalmic goitre are rare. Were any mental symptoms present? Recently, in Dr. Henry's ward in the Philadelphia Hospital, was a case of this disease, in which acute symptoms suddenly developed, and death took place with marked mental trouble.

Dr. J. H. Lloyd said that in his case the mind was perfectly clear, nor was there the slightest hysterical character about the symptoms. The patient was naturally much agitated over her condition.

Dr. W. B. Jameson made the following remarks on a case of

CARDIAC ANEURISM FROM AN INSANE MAN.

The heart which he exhibited was from an insane man who died in Dr. Lloyd's wards in the Insane Department of the Philadelphia Hospital; and it was through his courtesy that he was able to present it. The man was fifty-six years of age, a native of Switzerland. He was probably a priest, but for several years before admission to the hospital was engaged as a teacher. He had no friends in this country, and it was impossible to obtain a definite history. He was arrested on the streets and sent to the hospital. When admitted he was in an excited state; had evident delusions of persecution, believed that his food was being poisoned, and also had hallucinations of sight and hearing, and would often sit for an hour at a time talking to some imaginary individual. At times he was excited and would go about the wards declaiming to imaginary audiences. He would often preach, and sometimes chant. His physical condition was good. No physical lesions were discovered on admission. The heart sounds were clear, distinct, and without murmur. It was thought that there was possibly a pleural friction sound, but this was not definitely determined.

When Dr. Jameson went on duty in the Insane Hospital six months ago, the man was apparently in perfect health. He was quiet, speaking pleasantly when spoken to, but nothing more. He was well advanced in dementia, although perfectly cleanly in his habits. One day while Dr. A. A. Stevens and Dr. Jameson were in an adjoining ward, they were summoned to see this man, who was said to be dead or dying. They found him lying on the floor absolutely pulseless, face white, extremities cyanotic and cold, and respiration gasping. Brandy was given and ether hypodermatically. He was then put in a bath with the temperature of the water at about 117°. He shortly improved, became quite rational, and talked clearly. He complained of no pain whatever. He was kept in the bath three-quarters of an hour, when he began to sink, and was taken out and soon died.

Three hours after death the autopsy was made. The brain showed nothing special. There was nothing of interest found in the abdominal cavity. When the first costal cartilage was cut, blood gushed out, rising a distance of at least two inches. The whole mediastinal space was filled with fluid and partially coagulated blood. Extensive pleural adhesions, more particularly on the right side, were found. The space that was left was filled with blood. The total quantity was estimated at about two pints. The aorta was examined carefully with the parts in place, but nothing abnormal was found. The pericardial sac was found to be one-third filled with fluid blood. An aneurism was found at the apex of the right ventricle, and just at the septum there was a small opening where a rupture took place. The opening in the pericardium was not positively located.

[1] Hammond: Diseases of the Nervous System, p. 812.

In looking over the literature, Dr. Jameson found but one or two references to the subject. One case of rupture of the left ventricle was reported in the *American Journal of Insanity* for January, 1885. In this article reference is made to three other cases which had been reported in the *Edinburgh Medical Journal* for February, 1884. In all these cases the patients were about seventy years of age.

In this case there was no atheroma of the aorta. There was an ulcerated condition along the lateral border, also on a spot about the epicardial surface, three-fourths of an inch broad by one inch long, which presented the same appearance as the aneurism. Whether this spot was connected with the ulcer inside he could not say.

DR. WM. OSLER said that it is very unusual to find aneurism of the right ventricle of the heart. This condition is most common on the left side. The majority of aneurisms are the result either of local weakening, due to pericarditis, which is the less frequent case, or to a fibroid condition of the left apex. There is one other condition which may lead to the rapid production of aneurism of the heart, viz., myomalacia or anæmic softening, due to arterial changes. He would suggest that sections made from this locality might throw some light on the nature of the condition. The fact that we have in the immediate vicinity of the aneurism another spot of disease, would seem to point in this direction.

CORRESPONDENCE.

THE GALVANO-CAUTERY IN THE TREATMENT OF ENLARGED TONSILS.

To the Editor of THE MEDICAL NEWS,

SIR: In THE MEDICAL NEWS of March 10th, I notice the report of a paper read by Dr. Frank Hamilton Potter before the Medical Society of New York, on "The Galvano-cautery in the Treatment of Enlarged Tonsils." It embodies, I think, the experience of the majority of those who have *had* experience in the matter. There has lately been a great deal of literature on the subject in both home and foreign journals, but there are a few points deserving of mention which I have not seen dwelt upon sufficiently.

1st. As to pain. The fact is that while many tonsils may seem utterly devoid of sensation when hypertrophied, others, on the contrary, are quite sensitive to the application of the hot wire. Often, in the same patient, one tonsil may be cauterized freely with total immunity from pain, while the other is so sensitive as to require the application of cocaine, which, I think, should be avoided in the throat, if possible. I think most operators will agree with me that it is not always a "painless operation" as Dr. Potter sums up.

2d. As to the number of ignipunctures made at one sitting, I had the advantage of Dr. Knight's personal direction before he read his paper at the last meeting of the American Laryngological Association. At that time and since then, I think, he has limited the number of punctures to at most five or six at one sitting. (I only write from memory, and may be mistaken.)

Since then it has been my custom to regulate the number of punctures almost entirely by the size of the tonsil and the sensitiveness of the patient to the application of the hot wire. Whenever I have a comparatively insensible organ I make enough punctures to cover the whole tonsillar surface with a slough, even sometimes burning away small projections of tissue altogether. I have used the cautery, with three or four exceptions, for the last nine months in every case of enlarged tonsil I have seen, that number being the proportion usually seen in a throat clinic, for that time averaging 1200 to 1500 new patients yearly, and many times in private practice. With possibly one or two exceptions I have never seen any serious reaction. Occasionally the patient's throat would be very sore for part of the next day, but this has seldom lasted more than two days at the most. One case, I remember, complained of a sore throat for as long as five days. Another had an intervening quinsy, which, however, did not begin until two days after the operation, and may have been simply a coincident. Usually, most reaction is observed in those with sensitive tonsils even if only slightly burned—and mostly after the first sitting—the succeeding operations being followed by little pain.

Of course, this radical procedure can only be adopted at first when the tonsil is still large, because after most of the tonsillar tissue has been destroyed a sensitive area is reached near the normal mucous membrane, where pain always follows any deep or extensive cauterization. When this stage is reached, longer intervals should be observed, as there is always more or less infiltration of the surrounding mucous membrane which will disappear of itself if left untouched.

3d. As to its use in children. Lately I have ceased operating in patients under the age of twelve with the cautery. It is nearly always unsatisfactory. "Kindness and patience" will often lead the little ones to submit for one or two sittings, by which time you have changed the size and shape of the tonsil so that a tonsillotome can only be used with difficulty, and ignipuncture has become of exceeding difficulty owing to the want of control that even the most tractable child has over its pharynx. You now have a ragged mass of tissue between the faucial pillars full of holes and lodging places for food and secretions.

A tonsillotome, a strong assistant, and a sensible guardian of the child are all a moderately deft operator needs to settle the whole affair of enlarged tonsils in two minutes, without "general anæsthesia" and the danger of blood in the trachea of an insensible patient. I think there are no cases on record of serious—at least fatal—hemorrhage under the age of twelve. I believe that those who see a large number of cases of enlarged tonsils each year will soon discard tonsillotomy in adults where ignipuncture is possible. In many cases the latter is almost an absolute necessity owing to the diffused condition of the tonsillar tissue, and also, rarely, to the size of the mass to be removed.

4th. As to the number of sittings. I have never met with a case in which the hypertrophied condition was not removed by at most fifteen sittings if properly carried out. Usually half the number is sufficient.

To conclude, recurrence of the hypertrophy is occasionally seen where the tonsil has not been completely removed, or at least restored to its normal proportions. When the two operations of ignipuncture and tonsillotomy are explained to the patient with the advantages and disadvantages of each, I have yet to see the patient

who preferred the latter, though one after submitting to both said he preferred tonsillotomy.

JONATHAN WRIGHT, M.D.

73 REMSEN ST., BROOKLYN, N. Y.
March 12, 1888.

NEWS ITEMS.

The Illness of the Emperor of Germany.—The *British Medical Journal* of March 10, states that it learns by special telegram from San Remo, that the general condition of the Emperor Frederick is now very good. The irritation of the windpipe that was so troublesome for some time, has almost entirely disappeared, but there is some increase in the swelling within the larynx. We may add, that we are able to confirm this comparatively favorable account by independent information which we have received from a perfectly trustworthy source. We are in a position to state that neither Sir Morell Mackenzie nor Mr. Hovell is inclined to share the pessimistic views recently made public, though they do not, of course, deny the possibility of the disease proving to be cancer.

With regard to a rumor which has been largely current in society, and which lately found most unseemly expression in a French contemporary, we have the fullest authority to deny, in the most emphatic manner, that there is any ground for such a suspicion. We may repeat that the recent sufferings of the illustrious patient have been almost wholly due to the irritation caused by an ill-fitting tracheotomy tube. The operator, as was perhaps natural under the circumstances, appears to have been rather nervous, and the windpipe was opened some way to the right of the middle line; hence the difficulty of finding a suitable tube. Sir Morell Mackenzie, assisted by Mr. Hovell and Dr. Evans, the well-known dentist of Paris, spent the greater part of one day in constructing a tube of a shape specially adapted to the requirements of the case. Since this has been worn the Emperor has been more comfortable in every way; he has been able to sleep, the cough has diminished, and the expectoration has almost lost the blood-stained character which excited so much alarm.

It is satisfactory to see from the official bulletin lately published in the *Reichsanzeiger*, that the medical men are now in substantial agreement as to the nature of the disease. We do not think, however, that the inference which has been drawn from this in certain quarters, that Sir Morell Mackenzie has abandoned his recently published opinion on the subject, and adopted the less favorable view of some of his colleagues, is altogether warranted. Although the result of Professor Waldeyer's microscopical examination has not been published, we have reason to believe that it is such as to admit of a favorable interpretation.

An Illustrated Catalogue of the Army Medical Museum.—Dr. Billings, of the Army Medical Museum, will signalize the removal to the new building near the National Museum by the preparation of an illustrated catalogue. It will contain drawings of all the crude and wet specimens of tumors, cancers, gangrenes, etc., and other objects on exhibition in the museum, besides micro-photographs of morbid tissues prepared by Dr. W. M. Gray, the microscopist of the Surgeon-General's Office. Each picture will be accompanied by a short description of the object illustrated, but there will be no discussion of theories. The work, when completed, will constitute a complete pathology, and will be a most valuable text-book for students and physicians.—*Science*, March 16, 1888.

Successful Disposal of Garbage at Milwaukee.—Martin, Commissioner of Health, for Milwaukee, writes to the *Sanitary News* of March 10, 1888, reporting the success of the disposal of garbage by cremation, as follows:

Perhaps Milwaukee is not so favorably situated as some of our sister cities for the safe disposal of our refuse material, and that may be one reason why we have been forced to take vigorous measures to consume ours. Other municipalities have entered on a course of experiments involving large sums of money, and will, at the end of these experiments, be no nearer the solution of the problem than when they were first undertaken. With us it is quite different. Last summer we found that fully one-half of our garbage was water that could be, and was, extracted by a powerful press, and, as we know of no better or cheaper method of getting rid of this water, than by evaporation, and as we do not expect that garbage like ours will burn without fuel, so our furnace was erected and every day, for more than five months, our garbage has been consumed to a dry, inodorous ash; with us, it is no longer an experiment, but an accomplished fact, and we claim to be the first city that is to-day destroying her refuse material by fire. A test of the cost of consuming the garbage was made on December 27th, with the following result: The amount received and consumed was 40,215 pounds, and the fuel required was 5000 pounds, being 4.3 cents per hundred pounds of garbage consumed, a result highly gratifying when we consider that on that date there was a large quantity of snow and ice mixed with the garbage. This department entered into an agreement for three years with the contractor to burn all garbage delivered at the furnace by order of this office, being that collected by men employed for that work. The wholesale houses, grocers, commission houses, and others of that class, take their refuse to the same place. The contractor is also required to burn all small dead animals, and the furnace is in actual operation during this season, the worst of the whole year, only from eight to ten hours daily.

The Adirondack Cottages, at Saranac Lake, New York, for the treatment of pulmonary diseases, in its third annual report, presents a very gratifying record. During the year, fifty-one patients have been treated, with the following results: no deaths have occurred; eleven have lost ground more or less rapidly, most of them having returned to their homes; twelve have been slightly benefited, while twenty-three have so greatly improved as to be able to resume their various occupations, and five have been cured. On December 11 the weighing of patients showed the highest average gain yet noted. For seventeen patients (the entire number then in the institution who had been under treatment over two and a half months), the average gain per person was thirteen and one-eighth pounds.

Practical Courses in Dermatology at Hamburg.—We are requested by Dr. Unna, of Hamburg, to announce that he will begin a course in dermatology, for physicians, on April 1, 1888. This instruction will embrace the his-

tology, bacteriology, diagnosis, and therapeutics of skin diseases, and will be illustrated by the resources of Professor Unna's clinic and policlinic. Further information may be obtained by addressing Dr. P. G. Unna, Dammthorstrasse 15, 1., Hamburg, Germany.

A Sanitary Convention will be held at Manistee, Michigan, June 6 and 7, 1888, under the auspices of the State Board of Health.

The Decision by the Court of Claims in the case of Major John S. Billings, surgeon, United States Army, effectively disposes of the pretension of the accounting officers of the Treasury Department to dispute all orders of heads of departments involving the expenditure of money. Surgeon Billings was in 1881 and 1884 sent to Europe by the Secretary of War as a delegate to the International Medical Congress. He made a charge for mileage for distances travelled in Europe. The Court of Claims holds "that if there were any doubt of the authority of the War Department to order Major Billings to travel abroad on the public business intrusted to him, the long-continued practice of sending officers abroad on like business and paying their mileage from the Treasury through the accounting officers without objection would be strong reason for upholding the legality of such orders. But we do not think the question admits of doubt. The orders were legal and cannot be controverted by any other executive branch of the Government." The court further holds in specific terms that "the accounting officers of the Treasury have not the burden of responsibility cast upon them of revising the judgment, correcting supposed mistakes, or annulling the orders of the heads of departments." Again the court says: "It would be a novel principle to refuse payment to the subordinates of a department because their chief, under whose direction they had faithfully served the public, had mistaken his own powers and had given an erroneous construction of law."

A Prize for the best Portable Hospital.—A prize has been offered by the Empress of Germany, for public competition, of about $1500 for the best essay on the furnishing and carrying on the work of a portable hospital for sick and wounded persons; there will be also three gold and nine silver medals. The award will be made next September at the Brussels Exposition, and the German Association of the Red Cross will have the management of the competition. The competitors must send in their exhibits before August 15th. This is the second grand prize given by the Empress in this direction of improving field-hospital service; the former one having been awarded in 1885 for portable hut-hospitals.—*British Medical Journal*, February 25, 1888.

The Pollution of Streams.—The *Sanitary Engineer* of March 10, 1888, writes as follows on this subject:

The first and main consideration is as to whether the stream is or is not used as a source of drinking-water supply. If it is to be so used, it is certain that our present knowledge as to the limit of sewage impurity which may be considered permissible is very vague and wanting in scientific precision, and that there is much need of a series of careful observations on the effect of time and distance of stream-flow on diluted sewage, and especially on such pathogenic bacteria as the sewage of a community is liable to contain. The action of the ordinary bacteria of a sewage effluent is not harmful, but beneficial, and it is probable that there are other forms of bacteria, not contained in large numbers in ordinary sewage, but which are specially valuable as purifiers of such material and which exist in great abundance in those soils in which oxidation and nitrification are rapidly produced.

It is quite possible that these oxidizing bacteria might be cultivated in large quantities and added to sewage, but to enable them to flourish and do their work it is necessary that they should have a large supply of oxygen. This they have in soils which are not allowed to become too moist, but they do not have it in water, unless by agitation or in some other way air is mingled with the water.

Even with our present imperfect knowledge there is one fact which is tolerably clear, and that is that any stream of small or moderate size which lies in the midst of a populous and growing district is polluted, and will probably become more polluted, that this process is one of gradual increase, and that while we may not be able to predict a definite time in which it will become a nuisance or dangerous to health, we can see that it will become so sooner or later.

Typhoid Fever and Drinking Water in Vienna.—The *Sanitary Engineer* writes that the evidence is very strong that typhoid fever in Vienna has been connected with the water-supply, and that those who make use only of the present general supply run very little risk of taking this disease. Cases are now rarely seen in the hospitals, and when they do come it is almost invariably from some suburb to which the general supply has not yet been extended. Dysentery has also nearly disappeared, no deaths from this cause having been reported for the years 1881–86, and the whole statistical record gives excellent evidence as to the good effects produced by an unpolluted water-supply.

The Hygiene of Railway Operatives.—The Directors of the Great Northern Railway have recently issued an order to their firemen and engine-drivers which should be the initiation of similar regulations throughout the various railways in the country. No fireman or engine-driver is to be allowed to go on duty unless he has had at least nine hours' rest. Such an instruction should not be necessary, but being necessary, its issuance is no less a boon to the men than a source of safety to the public. —*Sanitary Engineer*.

The Contamination of Water by Lead.—There has been quite a lead-poisoning scare in Sheffield, England, which has called out the usual number of theories and suggestions. Among others Dr. Sinclair White has proposed a simple remedy—namely, filtration through lime—which seems likely to be adopted.

The *Journal of Gas-Lighting* directs attention to a letter recently addressed to the *Sheffield Telegraph* by Mr. Alfred H. Allen, F.I.C., F.C.S., President of the Society of Public Analysts, in which some suggestive remarks are made. The proportion of lead which is generally considered to render water seriously objectionable is one-twentieth of a grain per gallon; but Mr. Allen says there is some reason to believe that in cases

in which serious effects have been observed in Sheffield, the proportion has considerably exceeded this limit. It must not be supposed, however, that there is any danger in drinking a glass of water containing such a minute proportion of lead. It is not the single dose or a dozen doses which will produce any ill effects, but the constant use of such contaminated water. Lead is a cumulative poison, and each successive dose becomes stored up in certain organs of the body until the poisonous effects ensue. Further, it must not be supposed that every one is equally susceptible to the effects of lead, there being a great difference in this respect.

Mr. Allen adduces a striking instance, which came within his own experience of the way in which lead poisoning may occur. A year or two since a member of his family suffered from symptoms which her medical adviser considered to be due to lead-poisoning. The water drawn from the tap the first thing in the morning contained half a grain of lead per gallon, and about half this proportion after being allowed to run. By passing the water through a particular description of carbon filter every trace of lead was removed; but tea made from such pure water was sometimes found to contain 0.75 grain of lead per gallon. Analysis showed that the tea as bought was free from lead, and for some time Mr. Allen was puzzled to account for its presence. It was afterward found that the fur, or deposit, inside the kettle contained a considerable proportion of lead, some of which became dissolved in the water boiled in it. The kettle being replaced by a new one, the symptoms of lead-poisoning disappeared under proper treatment. He attributed the lead in the deposit to a servant having habitually filled the kettle from the hot-water tap, for hot water, it appears, acts on a lead pipe much more vigorously than cold.

It is reported by the Medical Officer of Health (Dr. A, Mackintosh) that from 100 to 150 more people are suffering from lead-poisoning in Chesterfield, England.—*Sanitary Engineer.*

Face Masks, Rouge, and Skin Washes.—The *American Analyst* of March 1, 1888, reports that of the numerous "face masks," "beauty masks," "complexion balms," "medicated pastes," "blooms of youth, beauty, or loveliness," "Lola Montez secrets," not one is good in any respect. The very best is without value. From this they range down to the depths of an injuriousness and ghoulish action. The best consist of an oil, fat, or glycerine, with some perfume, and a trifle of gum benzoin, camphor, or other drying substance. These are simply nasty. Their action is the same as of lard or butter smeared thickly over the face of the user. The rest are dangerous as well as disgusting. They contain the same ingredients as the face powders denounced, and are even more pernicious in their action. Lead colic, lead paralysis, mercurial ulcers, arsenic sores, boils, carbuncles, abscesses, putrid glands, salivation, sudden baldness, and even more serious ills, can be traced to their use, and will invariably accompany that use as long as the human body remains as it is to-day.

Of the rouge preparations, those made from cochineal and madder are harmless. All others are bad, very bad, and horrible. The "eau de vinaigre," "rouge vinaigre," "camphor wine," "red pepper wash," "capsicum elixir," and the like, which depend for their effect upon irritating the nerve corpuscles, are unobjectionable to the physician and the chemist. The new preparations, which are solutions of aniline and other coal tar colors, are poisonous and should be prohibited by law.

There is little or nothing to be said against the washes used to remove pimples and blackheads. They are usually made by dermatologists of good standing, and do their work properly, and in a reasonable time. It is far better, however, to depend upon a fine toilet soap or dilute ammonia, gentle but persistent rubbing, the Turkish or Russian bath, and a piece of lemon. A two weeks' course of the latter will improve any complexion better than all the washes extant, and, more than that, will correspondingly improve the general health.

Disinfection by Sunflowers.—It has been stated that since the sunflower has been cultivated on certain swamps of the Potomac, malarial fever has decreased. At the mouth of the Scheldt, in Holland, it is stated that similar results have been observed. The sunflower emits large volumes of water in the shape of vapor, and its aromatic odor, as well as the oxygen it exhales, may have something to do with the sanitary influence in question.

The Contagion of Leprosy in Minnesota.—The State Board of Health of Minnesota gives out the statement by Dr. Grondold, of Norway, Minn., that "no case of leprosy has ever originated in Minnesota by contagion, and that of all the children of lepers living here, not one has exhibited any signs of the disease."

The Part played by the Skin in "Catching Cold."—The part played by the skin in the contraction of colds, and such diseases as begin with a cold, is well worthy of being scientifically studied, especially at a time when the general acceptance of a germ theory in relation to these diseases has upset all previously formed opinions. This part has been made the object of study by Dr. E. Lier, of Creuznach, and his investigations form an interesting chapter in the recent number of the *Monatsch. f. prakt. Dermatologie.* His conclusions, which may prove suggestive if not instructive, are as follows: 1. The skin renders colds possible simply as the organ of temperature sense, and its action is reflex. 2. The histological and physiological changes in the skin are reflex phenomena. 3. The disposition to colds depends on the degree of the resisting power of the skin. Further consequences are: that the best prophylaxis against colds depends on the skin, and may be brought about by skin gymnastics and stimulating baths. 4. The treatment of these diseases by diaphoretics is not causal, but symptomatic. A rational treatment of febrile diseases consists in the employment of such agents as act on the central organs, morphia, chloral, digitalis, warm or tepid baths, camphor, musk, cold douches, and in the case of infective diseases, antiseptics. He further assumes that where the predisposition to colds is marked, there must be some disease of the skin at the bottom of it all, the symptoms and pathology of which it should be the aim of investigators to discover.—*Medical Press*, February 28, 1888.

Dangers Connected with the Use of Electricity in Medicine.—Steavenson, electrician at St. Bartholomew's Hospital, warns against the careless use of electricity, in the *Provincial Medical Journal* of March 1, 1888, as follows:

The use of the wrong pole in electrical treatment may be followed by most disastrous results; and the chances of the wrong pole being used are very numerous, sometimes even escaping the vigilance of the most experienced. The commutator of the battery may have been arranged wrongly by the instrument maker; the galvanometer may have been inserted on the wrong side of the circuit; the current may have to be arrested during an operation, and the commutator reversed by accident through the negligence or ignorance of an assistant. One operation may have required the use of the positive pole, and the next of the negative, and the necessary alterations in the battery have escaped notice. All these accidents have occurred within the knowledge of the author. I write with a sense of the strongest responsibility when I warn the profession against the indiscriminate use of electricity, and its indiscriminate use by those who have not a thorough knowledge of its action, and of the proper way of applying it, and of the construction of batteries. I have seen part of the mucous membrane of the urethra torn off and followed by profuse hemorrhage by the use of a positive pole in the treatment of stricture. I know of a case where the patient suffered from such extreme collapse after a similar operation, that the surgeon for a time was fearful as to the result. The collapse was produced, either from the current being used too strong, or when strong, suddenly broken. I have been upbraided by a surgeon for advocating the treatment of stricture of the urethra by electrolysis, because in two cases he had set up most intractable cystitis by not cutting off the current after his electrode had passed the stricture, but by passing it on and electrolyzing the coats of the bladder; and yet, when properly performed, electrolysis is the best mode of treating stricture. I have seen a patient disfigured for life by the too energetic use of the wrong pole, in treating a hairy mole on the face. In another case, an abscess or slough was produced in the upper part of the pharynx, accompanied by the most intolerable earache, by the use of the wrong pole in an attempt to electrolyze the Eustachian tube. Most profound collapse has been caused by an assistant uncoupling one of the electrodes after the electrolysis of a uterine fibroid, and before the current had been gradually reduced in strength. Very painful and disagreeable shocks have been produced when treating the same affection, by the battery having been sent home by the instrument maker with the zinc of one couple of elements placed in the wrong cell; and in another instance, by the battery being sent home with the fluid omitted from one cell. A case has been published where, no doubt, the woman's life was in jeopardy by the sloughing of a tumor produced by the use of a too strong current. I mentioned in my paper, read at Dublin, the difficulties, though not serious, which followed the use of the wrong pole in the treatment of lachrymal obstruction. I could greatly extend this list of dangers and difficulties connected with electrical treatment, but I have said enough to show that it should not be undertaken without a thorough knowledge of the apparatus to be used, and the mode of using it.

The Death of Mr. Curling, of the London Hospital.—Thomas Blizard Curling, F.R.C.S., F.R.S., Consulting Surgeon to the London Hospital, died on March 4, 1888. He had been on the staff of the London Hospital for many years, and had enriched surgical literature by frequent contributions, among which are his "Original Observations on the Association of Duodenal Ulcers with Cutaneous Burns." His larger works were a prize essay on "Tetanus," "Diseases of the Testis," and "Diseases of the Rectum."

Death of Augusto Michellacci.—Michellacci, the foremost of Italian dermatologists, died in Florence March 13, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM MARCH 13 TO MARCH 19, 1888.

BAXTER, J. H., *Colonel and Chief Medical Purveyor.*—Will proceed to Augusta Arsenal, Ga., on public business.—*S. O 62, A. G. O.*, March 16, 1888.

STERNBERG, G. M., *Major and Surgeon.*—Ordered to proceed to Brunswick, Ga., on official business, and, upon completion of the same, will return to his proper station.—*S. O. 57, A. G. O.*, March 10, 1888.

GREENLEAF, CHARLES R., *Major and Surgeon.*—Will proceed to Cambridge, Mass., on official business—*S. O. 62, A. G. O.*, March 16, 1888.

O'REILLY, R. M., *Major and Surgeon.*—Will proceed to York, Pa., and make an examination of Captain Edward B. Rhum, Twenty-first Infantry.—*S. O. 62, A. G. O.*, March 16, 1888.

CROSBY, WILLIAM D., *First Lieutenant and Assistant Surgeon.*—Granted leave of absence for two months, with permission to apply for an extension of one month, to take effect after being ordered to a new station.—*S. O. 60, A. G. O.*, March 14, 1888.

KEAN, JEFFERSON R., *First Lieutenant and Assistant Surgeon.*—Relieved from duty at Fort Sill, Indian Territory, and ordered for duty at Fort Robinson, Nebraska.—*S. O. 56, A. G. O.*, March 9, 1888.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MARCH 17, 1888.

RUSH, W. H., *Passed Assistant Surgeon.*—Detached from the Navy Yard, New York, and ordered to the Naval Hospital, Philadelphia, Pa.

STEELE, J. M., *Passed Assistant Surgeon.*—Detached from the Naval Hospital, Philadelphia, and ordered to the Coast Survey Steamer "Bache."

OBERLY, A. S., *Medical Inspector.*—Detached from the Navy Yard, Portsmouth, N. H., and wait orders.

DUBOIS, F. L., *Surgeon.*—Ordered to the Navy Yard, Portsmouth, N. H.

KEENY, JAMES, *Assistant Surgeon.*—Ordered to the Receiving Ship "Minnesota."

DEANE, C. W., *Passed Assistant Surgeon.*—Detached from the Marine Rendezvous, San Francisco, and ordered to the Coast Survey Steamer "McArthur."

AUZAL, E. W., *Assistant Surgeon.*—Detached from the Coast Survey Steamer "McArthur," and ordered to the Marine Rendezvous, San Francisco.

BIDDLE, CLEMENT, *Passed Assistant Surgeon.*—Ordered to the Naval Academy, Annapolis, Md.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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ORIGINAL ARTICLES.

THE PHYSIOLOGICAL EFFECTS OF THE EMPYREUMATIC OIL OF COFFEE, OR CAFFEON.

BY H. A. HARE, M.D.,

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AND

JOHN MARSHALL, M.D.,

DEMONSTRATOR OF CHEMISTRY IN THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF PENNSYLVANIA.

THE well-known fact that the strong infusion of coffee as ordinarily ingested, possesses certain properties in which the alkaloid caffeine is lacking, points very strongly to the empyreumatic oil of coffee as the second agent whose presence is felt. This empyreumatic oil of coffee, or caffeon, is a complex mixture of the oils contained in browned coffee, formed in the roasting as a product of destructive distillation of the organic matter in the green bean.

As long ago as 1853, J. Lehman studied the action of the oil. He distilled ground coffee, which had previously been browned, with water, and administered the aqueous distillate, which contained an unknown quantity of the drug, in tumblerful doses. These doses were repeated as often as four times in one day. The symptoms noted were nervous agitation, slight sweating, and a marked increase in the rapidity of the circulation. When twice the above amount was ingested the symptoms were congestion of the eyes, copious perspiration, sleeplessness, and in some instances purging.

The results reached by Lehman have been confirmed by Nasse, who, using animals, noted in addition to the disorders already mentioned, intestinal peristalsis of a marked type, which he claims that caffeine fails to produce. Meplain and Marvard state that caffeon slows the circulation and decreases the arterial pressure. Rabuteau considers that the oil is capable of producing symptoms of a decided toxic nature, and prevents the development of infusoria in liquids, such as milk, etc. Rabuteau goes so far as to assert that the oil is the chief factor in causing the well-known coffee wakefulness. The results of Binz, of Bonn, are, however, in direct opposition in some respects to those of Meplain and Marvard, for he found that the oil of coffee increases the number of the cardiac pulsations and stimulates respiration. Zulinski found that, when given to frogs, tetanic spasms of the muscles came on.

So far as we can discover, all of the investigators so far named, used an aqueous distillate of browned coffee containing an unknown quantity of the oil. This being the case, it seemed to us of interest to determine the effect of the pure oil in definite amount on the animal organism.

The empyreumatic oil employed by us was obtained from the freshly roasted bean, by placing the very finely ground coffee in a Soxhlet's extractor, and extracting by means of petroleum ether. In this process the fats contained in the coffee would also be extracted by the ether, but as it is likely that most of the fats were converted into empyreumatic substances in the roasting, those remaining undecomposed and extracted in company with the oil by the ether, were so inconsiderable as not to influence the physiological action. Caffeine is also very slightly soluble in petroleum ether, and on evaporating the petroleum ether and allowing the oil to stand a few days, the caffeine separates in minute crystals and subsides at the bottom of the vessel and may be removed by filtration. The petroleum ether containing the oil was allowed to evaporate at ordinary temperature, the remaining oil, after standing several days, was filtered to remove small particles of the coffee and the minute crystals of caffeine that separated. The oil obtained in this manner was of the consistency of a very dilute syrup, and was light or dark brown in color, according to the degree to which the beans had been roasted. This variation in color does not seem to have had any relation to its physiological action. It possessed to a great degree the peculiar aroma of browned coffee. The percentage of oil obtained from an average browned coffee was found to be 11.6 per cent., and from this we calculated that a cup of coffee, made in the ordinary way, provided the liquid possessed all the oil contained in the amount of coffee employed in its preparation, would contain about 3 c.c. (45 minims) of the oil.

When from one to four cubic centimetres of the pure oil are injected into the jugular vein of a medium sized dog, whose carotid artery is attached to the mercurial manometer, almost immediately there is produced an increase in the rapidity of the pulse, which continues for many minutes. If a larger dose, as much as 8 cubic centimetres, be given, the pulse is quickened for a short time, and in the course of a few minutes slowed very considerably. That the cause of the rapid pulse is not due to depression of the inhibitory apparatus, was proved by the fact that in every instance stimulation of the vagi slowed the heart quite as powerfully as if no drug had been given. The increase in rate must, therefore, be due

either to a direct stimulation of the heart itself, or the accelerator nerves. That the influence of the drug is exerted upon the heart directly seems the more probable, since if a minute amount of the oil be applied directly to the frog's heart, an increase in the pulse rate occurs. The slowing of the pulse, which comes on when larger doses are used, depends on the influence which the drug exerts directly on the heart muscle, since at this time section of the vagi fails to cause as great an increase in rate as should ordinarily occur. This might be an indication that the peripheral vagi were stimulated, were it not that at this time the pulse waves are small and feeble, and the whole tracing indicates circulatory depression. That the fall of arterial pressure occurring with the slowing of the pulse, is due to cardiac involvement rather than to vaso-motor disturbance, was proved by the fact that asphyxia at this time immediately produced a rise of arterial pressure almost equal to the normal; further than this, it was proved by experiments on the isolated frog's heart that the drug, when directly applied in large amounts, acted as a depressant, the movements becoming slower, weaker, and finally ceasing in diastolic arrest; previous to this stoppage, however, slight vermicular or peristaltic waves traversed the ventricular wall.

The contradiction which apparently exists between the results of Binz and Meplain and Marvard are therefore explainable by the supposition that the first observer used a distillate containing a smaller percentage of the oil than that of the French investigators, and as a result of this Binz found, as we have done, that the pulse-rate is quickened, while his Gallic brethren found that it was slowed. The following tables, from tracings taken by ourselves, illustrate what we have already stated.

TABLE I.—Dog, weight 12 lbs. Showing increase in pulse-rate after small doses, and the effect of stimulating the vagi.

Time.	Drug.	Pressure.	Pulse.	Remarks.
11.00	.....	140–160	132	
11.00.10	.....	140–158	132	
11.00.20	.....	140–158	126	
11.00.30	.....	140–158	126	
11.00.50	.....	140–158	134	
11.01.06	4 c. c. of pure oil.	140–158	134	Injection begun.
11.01.16	.....	158–120	134	
1.0 .26	.....	120–144	102	Injection ended.
11.01.41	.....	130–120	108	
11.01.51	.....	120–130	126	
11.02.01	.....	106–130	126	
11.04	.....	126–146	144	
11.04.10	.....	126–144	156	
11.04.20	.....	120–144	156	
11.08	.....	130–156	154	
11.08.10	.....	132–210	132	This momentary slowing of pulse probably due to irritation of the vagi when rousing for galvanization.
11.08.20	.....	142–204	156	
11.08.30	.....	144–184	144	Galvanized vagi.
11.08.40	.....	118–210	84	
11.08.50	.....	136–228	66	

TABLE II.—Dog, weight 15 lbs. Showing slowing of pulse produced by large doses (8 c. c.) of the oil of coffee, and effect of vagal section.

Time.	Drug.	Pressure.	Pulse.	Remarks.
11.50	.....	120–188	90	Showing pulse before drug was given from 140–150 per minute.
11.51	.....	118–176	86	
11.51	.....	120–188	84	
11.51.40	.....	120–188	90	
11.51.50	.....	128–196	84	
11.52	.....	122–178	90	Vagi cut.
11.52.14	.....	124 192	120	
11.52.24	.....	164–192	174	
11.52.34	.....	180–200	178	
11.52.44	.....	190–224	186	
11.52.54	.....	188–224	176	
11.53.54	.....	194–216	168	
11.54.54	.....	196–218	180	
11.55.54	.....	200–221	190	

A curious condition of the heart was found to be constant in every one of the seven tracings taken, namely, that the heart was found stopped in diastole, with all its cavities greatly distended and filled by a well-formed clot, which would stand upon the palm of the hand without breaking. In order to determine whether the drug had any effect on the blood outside of the body, we opened the carotid artery of the dog and allowed about 5 c. c. of blood to escape into a porcelain dish in which was placed 1 c. c. of the oil.

Under these circumstances the blood in contact with the oil coagulated in half the time required by the blood in the dish without the oil. Notwithstanding the fact that we have examined the oil very carefully for any foreign substance which might produce such changes, we are unable to offer any explanation of this curious change in the blood.

On the nervous system the drug has evidently an action resembling only in some of its points that generally ascribed to coffee. When one cubic centimetre of this oil was given to a medium-sized frog, by means of a hypodermatic syringe, into the posterior lymph-sac, in the course of from one to two minutes reflex movements became very much increased in scope and force, remaining so for a number of hours, and at no time did diminution of either sensation or motion appear to come on. When two cubic centimetres of the oil were injected hypodermatically into a lively Scotch terrier, in ten minutes he became quiet, and in twenty minutes was asleep in front of the fire. If aroused or disturbed, his attention could readily be obtained, but if neglected sleep again asserted itself.

The laboratory assistant now took by the mouth about 4 c.c. (about a drachm) of the oil and suffered no symptoms for three hours, when he also became so sleepy, that on returning home at 6 P.M., he did not want to eat, but was overpowered by sleep, and lying down on a sofa fell into a slumber from which his wife with difficulty aroused him in an hour or two. As this man did not know of the action of the drug, this result could hardly have been due to

imagination. His report was given voluntarily, with no questioning. Owing to the kindness of Dr. de Schweinitz we were enabled to obtain the following tests:

Case I.—A., æt. fifty-nine, female. Always passes sleepless nights, or, at the best, is very restless. Gave fifty minims of the oil at 3.58 P. M., when the pulse was 84. At 5 P. M. there was nausea but no vomiting. At 8.15 P. M. there was vomiting of mucus and the contents of the stomach, supper having been eaten in the meantime. Retired at 9 o'clock, and made the statement next day voluntarily that she had slept the entire night. There was no period of drowsiness before the sleep, and no sequelæ.

Case II.—Male, aged about fifty. Had fallen and cut his temple on the ice, he also had winter cough quite severely. Gave fifty minims at 4.17 P. M., the pulse being 66. At 7.15 no change in pulse, no drowsiness. Went to bed between 8 and 9 P. M., the pulse at this time being 110. The man was restless, but had no nausea. He passed a restless night, and had no diminution of pain in the head caused by the fall.

As pain may have been a factor in producing insomnia in this case, it is not of much value in its results as indicating what effect the drug may have on sleep.

In a third case Dr. de Schweinitz noted no change, save perhaps some increase in restlessness.

To sum up this apparent power of producing sleep, we find that in the dog and in two instances in man sleep was produced; while in two instances in man, in one of whom pain was present, the oil failed to cause sleep, but rather restlessness.

Summary.—The pure empyreumatic oil of coffee increases pulse-rate by direct cardiac stimulation in small doses, and lowers pulse-rate by a cardiac action in large doses. On the highly developed spinal cord of the frog it causes increased reflex excitability, but on the mammal, with a well-developed brain, drowsiness and sleep, although with the limited material at our disposal this is at present far from being positively proved.

The action of this oil is evidently not as powerful as is that of the alkaloid caffeine.

A CASE OF CHOLECYSTOTOMY.

By J. J. EDWARDS, M.D.,
SURGEON TO ST. XAVIER'S INFIRMARY, CHARLESTON, SOUTH CAROLINA.

Miss B., æt. fifty-four, of Irish descent, school teacher. When a child had a mild attack of yellow fever, otherwise has always enjoyed perfect health until four years ago, about the climacteric, when she experienced vague pains in right hypochondriac region, accompanied by a slight cough, which were ascribed by her physician in a neighboring city to some lung trouble. Pains were never paroxysmal or severe. No gall-stones were ever detected.

Her health began to fail in December, 1887; complained of general malaise; pain in side increased and bowels moved only after the administration of cathartics. The dejections were clay colored and very offensive, slight icterus now developed for the first time. She was advised to go to Florida to recuperate. She came to Charleston in the middle of January and consulted a physician, who attended her constantly, but gave no hope of relief and predicted an early dissolution.

I saw the case late in the afternoon of March 8th, and found a very emaciated, extremely weak, and intensely jaundiced woman, who could retain nothing on her stomach. She vomited quantities of black disintegrated blood. Her dejections were frequent and quite fetid, and consisted of dark bloody mucus. She complained of intense pain over the liver and extending down to the right iliac fossa. Her urine contained bile. Her extremities were cold, and her knees were drawn up.

Physical examination.—Liver much enlarged, reached four fingers' breadth below border of ribs. An ovoidal tumor, which accompanied respiratory movements, apparently cystic, very sensitive; that pressure on it caused nausea and faintness, with a tympanitic sound on percussion except over a very small area which was dull, and about three inches across, was readily demonstrated.

Diagnosis.—Distended gall-bladder, due to an obstructed duct, possibly by a calculus. An immediate operation was advised as the only means of relief. This was not accepted, and the friends were given until morning to decide. Ordered one grain of calomel in ten powders one every hour, and an enema of two ounces sweet oil with one drachm glycerine, also the administration of stimulants.

She passed a better night, but had weakened perceptibly. An operation was now consented to with the distinct understanding of its almost sure fatality.

With the assistance of Drs. Rhett and Buchanan the patient was chloroformed and hypodermatics given to arouse the already flagging vital forces.

A vertical incision, two and one-half inches, over the outer border of the rectus muscle through the peritoneum disclosed an enormously enlarged liver and distended gall-bladder. The incision was now enlarged downward, the needle of the aspirator was inserted into the cyst at the lowest possible point, and drew off seven and one-half ounces of bile and mucus; as the sac collapsed the needle came gradually upward until it was considerably above the lower angle of the incision. The bladder was now grasped by two catch forceps, the needle withdrawn, and an incision made between the forceps large enough to admit the finger, which readily detected several stones. The tedious process of removing them singly with forceps was begun, when, at the suggestion of Dr. Rhett, it was found much more expedient to strip them out with the finger in the abdomen; the opening in the bladder being first drawn beyond the abdominal wound. Twenty-nine stones, averaging five and one-third grains, were removed. There were adhesions between the lower surface of the bladder and the surrounding structures, through which an enlargement, possibly another stone, could be felt over the course of the common duct, but as a searcher failed to de-

tect it, and, owing to the precarious condition of the patient, it was decided to finish the operation at this stage. The peritoneum at the upper angle was first united by catgut opposite to the opening in the gall-bladder; the deep retention silk sutures down to the peritoneum were passed, but not tied. As there was constant oozing of bile, and we feared its extravasation into the abdominal cavity, Tait's procedure of uniting the sac to the peritoneum by a continuous suture passed through the abdominal walls was deviated from, and instead, the incision in the bladder was drawn up until on a level with the integument, then the peritoneum alone was united to its walls lower down by continued catgut suture, the silk sutures tied, and the mouth of the sac stitched to the integument. A large drainage tube was inserted; iodoform was dusted over and the dressing completed as usual.

Patient was put to bed and every endeavor made to rally her, but she died in collapse eight hours after the operation. The hemorrhage, consisting principally of general oozing, was considerable and hard to control. Thorough aseptic precautions were observed. The dressings were found, after death, to be saturated with bile and tinged with blood.

Reviewing the case, it would seem, in this instance, better to have aspirated first, and then allowed the patient to react; then the radical procedures, subsequently, might not have terminated so disastrously. Possibly it was wrong to have operated on the patient, in her condition, at all, but it was done in her interest and not for statistical record.

The operation, comparatively, is not a hard one, and it is surprising that it is not oftener performed.

March 11, 1888.

DYSTOCIA, DUE TO HYDROCEPHALUS, NECESSITATING CRANIOTOMY.

BY A. A. G. STARCK, M.D.,
OF PHILADELPHIA.

ON October 4, 1887, I was summoned to Mrs. D., age twenty-two years, German, in labor with her second child. A midwife in attendance gave this history. The patient considered her time up two weeks previously, and began having pains. The midwife's examination could not determine a presenting part. Bearing-down pains, however, lasted two weeks, but no progress was made in the labor. During this time she vomited everything, the egesta being mixed with bile. The act of vomiting was accompanied by severe pain in the hepatic region. On my arrival on the morning of the 4th, the patient had no pains, as they had suddenly ceased at 12 o'clock midnight. Previous to that time she had suffered throughout the afternoon and night. I first noticed that the abdomen was very large, arousing a suspicion of twins, and its contour differed from an ordinary pregnant uterus in labor, not presenting the prominent globular form generally seen, being markedly oval in shape and extending high up into the epigastric region. Upon palpation the abdomen felt smooth and tense. In the left inguinal region was a protuberance resembling a head, but larger. The fœtal heart sounds were faintly audible some distance above this. Digital examination revealed the vagina hot and swollen, and the os sufficiently dilated, but none of the fœtal parts could be distinguished until the whole hand was introduced, when a large, soft tumor was felt much like a caput succedaneum. The examination occasioned great pain.

The os uteri was not at first sufficiently dilated to allow the whole hand to pass through, but yielded in a little while to gentle dilatation with the fingers. The membranes were intact and in close contact with the presenting part, which covered the whole pelvic brim at the superior strait, dipping into the true pelvis but slightly. The hand could more readily be passed over the side where the occipital bone of the fœtus was felt, but passed with difficulty in front of the head, which seemed about eight inches in diameter, and upon this fact I based the diagnosis of hydrocephalus. The examination did not arouse any uterine pains. Complete inertia continuing, Dr. Howard A. Kelly was summoned to perform craniotomy. Not being fully informed as to the grounds of my diagnosis he came prepared to perform Cæsarean section, if there was any chance for the life of a sound child; but after a careful examination he was satisfied, from the great size of the head and the sufficient size of the maternal parts, that nothing but craniotomy was feasible. The large head could easily be outlined by palpation, lying in the first position, extending from the left side below up toward the right hypochondrium, and above it to the left lay the displaced small parts.

The patient was anæsthetized with chloroform, the external genitalia and vagina were washed with a solution of hydrarg. bichlor. 1 to 2000, the bladder was catheterized, and the head perforated by a large guarded trocar in the presenting posterior fontanelle. A stream of limpid liquid gushed out which was collected in a vessel at the bedside, draining on to Dr. Kelly's obstetric cushion, upon which the patient lay in the dorsal position. As the fluid drained away the abdomen grew visibly smaller. Gentle pressure above the pubes increased the currrent, which at the last was admixed with some blood. The abdomen was now quite relaxed, and by gentle traction on the tissues of the skull with a flat, duck-bill, bone forceps, the head collapsed and was easily drawn down, and the child delivered. The placenta followed immediately by gentle expression, after which the vagina was again douched with a weak solution of bichloride and the patient returned to her place in bed, perfectly comfortable and composed, without any pulse elevation.

The child proved to be a monstrous female measuring in length 66 centimetres (26 inches). Size of the head from chin to vertex 21 centimetres; occipito-frontal 41 centimetres. After the parts were restored as nearly as possible to their natural position, by filling the head with wood shavings, it measured as follows:

Occipito-frontal circumference	.	22½	inches.
Occipito-mental "	.	23½	"
Cervico-bregmatic "	.	19½	"
Fronto-mental "	.	16	"

The fluid contained in the skull measured five pints. The anterior fontanelle was about the size of a man's hand, the nails well developed.

The mother made a speedy recovery, and was with difficulty kept in bed after the fourth day. Her first child, born about eighteen months previously, was perfectly healthy and the labor natural.

Judging from the history I believe she had been in labor for two weeks when I saw her. The uterus made regular attempts for many days to expel its contents, but being unable to force this enormous head into the pelvis was finally exhausted and complete inertia followed.

The history justifies the opinion that had a careful examination been made at the time when the vomiting began she would have been relieved earlier, and the great risks she ran materially diminished.

The obstetric cushion is an oval rubber sheet with an inflatable rim, open on one side where fluids are discharged and conducted by an apron into a bucket. By means of its use, the constant douching and free discharge of fluid, as well as the discharge of blood and placenta, were kept from the bed and patient's clothing, and she was at once returned perfectly clean to a dry bed after the completion of the delivery.

The specimen is well preserved, and is now in the possession of the Mütter Museum at the College of Physicians.

11°4 Hancock Street, Phila., December 30, 1887.

ASEXUALIZATION AS A PENALTY FOR CRIME.[1]

BY ORPHEUS EVERTS, M.D.

A medical correspondent of the Cincinnati *Lancet-Clinic* of October 15, 1887, referring to a suggestion by Dr. Agnew, that emasculation as a penalty for the crime of rape would be followed, if inflicted legally, by satisfactory results, approves the suggestion, as if this penalty were novel and untried; and asks if the subject cannot be brought before the Academy of Medicine for discussion, with a view to influencing legislation for its adoption.

Having given the subject of emasculation a good deal of attention in the course of twenty years' constant association with, and study of, one of the several defective classes of society—not, it is true, as a contemplated penalty for the crime of rape—but as a possibly important factor in the great social problem of lessening the burden of society by bettering the condition and lessening the number of the defective classes, I beg leave to submit a proposition imperfectly embodying conclusions arrived at, and to offer in support a brief and desultory commentary.

[1] Read before the Cincinnati Academy of Medicine, February 27, 1888.

The proposition may be formulated thus:

Surgical asexualization of all criminals convicted of offences that, circumstantially considered, indicate constitutional depravities that are recognized as transmissible by heredity, is not only practicable, but expedient for the protection of society from the ever impending danger of invasion by the "savages of civilization," known as the vicious, criminal, or defective classes, and would, properly enforced, eventuate in an effectual diminution of crime, and reformation of criminals.

The scope of this proposition is much broader than that contemplated by Dr. Agnew and the *Lancet-Clinic* correspondent, and is based upon considerations much more complex and comprehensive than a species of revenge, naturally suggested to persons whose civilization is but a veneering, for all offences against the written and unwritten laws of society regulating commerce of the sexes, and often practised by outraged or enraged avengers of hymeneal infidelity, or family dishonor; as, for example, by the relatives of the noble but unfortunate Heloise upon her priestly lover and seducer, Abelard, whose name, inseparable from hers, filled for centuries so large a page in the history of true love's constancy and martyrdom.

In order to comprehend more fully the purport of the proposition submitted, it may be well to consider carefully the following facts, viz.:

(*a*) Among all undeveloped peoples, punishment for offences, criminal or otherwise, is retaliatory, vindictive, and cruel, the primary purpose being to gratify revengeful feelings by the infliction of pain upon the offender, and secondarily, to terrify others by the exhibition of cruelty and power. Further on in the history of human progress ideas of compensatory justice appear, and an eye for an eye, and a tooth for a tooth are demanded, or certain equivalents, not in kind, are made acceptable, as punitive, for misdemeanors affecting rights of property, or for minor offences affecting the rights of persons.

(*b*) But, step by step with the evolution of morals, characteristic of, and inevitably concomitant with higher reaches of human development especially appreciable within the last two or three centuries, the disposition to punish criminals by way of retaliation—blood for blood, a blow for a blow, and burning for burning—has been undergoing well marked modification. The tendency has been, and is, in all civilized states called Christian, toward, not toleration of crime or forgiveness of criminals, but a more charitable, because more intelligent, consideration of the relation of criminal conduct to antecedent and concomitant conditions affecting the lives and character of the guilty, and a recognition of the duties imposed upon society growing out of such relations.

We have reached a plane of perceptions, indeed,

in this country, where such considerations and recognitions have displaced, to a great extent, ancient ideas of retaliatory or compensatory justice, and the nature of responsibility of individuals growing out of their relation to society.

The question with us in considering any new proposition respecting criminal jurisprudence now is, not what kind or degree of torture inflicted upon the guilty will satisfy the indignation or appease the anger of offended innocence, or intimidate most effectually the evil minded and criminally disposed, but what kind of treatment shall criminals receive at the hands of society consistent with its self-protection, that is likely to eventuate in a general betterment of their conditions, and consequent improvement of their disposition? In other words, by what methods of punishment, the most kindly and considerate, can society be most effectually protected from injury and apprehension, crime most effectually diminished and prevented, and criminals most effectually reformed?

In proposing asexualization as a penalty for crime, the foregoing question has not been overlooked nor evaded; hence the use of the term asexualization as implying its applicability to both sexes, instead of emasculation, as applicable to men only. Hence, also, the extension of its applicability to an entire class of offenders, however varied their crimes, instead of its limitation to such only as do violence to the laws governing the commerce of the sexes.

Would a penal enactment embodying the proposition under consideration answer the demands of civilized society as above indicated? If so, it should be unhesitatingly adopted. If not, it should be as unhesitatingly rejected. It is my present belief that it would; that in accordance with physiological and psychological facts and principles, such consequences would follow the intelligent enforcement of this proposed method of treating criminals, as would, after a time, fully vindicate the wisdom of its adoption. In support of this affirmation, the following considerations are respectfully submitted, viz.:

(*a*) The conduct—speech and action—of all living beings is expressive of the organic instincts, capabilities, and appetences indicative of the necessities or desires of such beings.

(*b*) The organic instincts, capabilities, and appetences of all living beings, indicative of their necessities and desires, manifested by their conduct, speech, and action, may be classified under one or the other of two heads, as pertaining either to the "love of life" or the "love of sex;" the end of the one being preservation of self; the end of the other being reproduction of self, the end of both being perpetuation of the race.

(*c*) Man is not an exceptional being as to his becoming, subsisting, reproducing, or disappearing, individually, or as a race; differing only structurally and functionally from other living beings of the order to which, zoölogically considered, he belongs, to the extent of certain modifications of organs and function, common to the order, effected by disuse or increased activity of such organs in adapting themselves to new uses, under the pressure of ever-increasing capabilities and necessities, aided by the fixing quality of heredity. Therefore all human conduct, however exalted or debased, whether in pursuit of gain or glory, power on earth or heavenly approbation, or gross and grovelling gratification of the primary senses, may be referred to one or the other of these organic loves—the love of life or the love of sex.

(*d*) The love of life precedes, outlasts, and is stronger than the love of sex. Beginning with the specialization of matter as a living being, it continues and increases through all the stages of growth, diminishing with retrogressive motion, to disappear only with the final dissolution of the individual.

The love of sex develops with the development of sexual capabilities, appearing comparatively later in the growth of the more highly organized and intellectually capable beings, growing stronger with the natural growth and exercise of functional capabilities, to culminate and diminish, leaving but a memory, long before the limit of individual expectation of life has been reached.

(*e*) By far the greater exhibition of vicious conduct, including crimes, characteristic of the defective criminal classes of society, pertains to that period of individual human existence remarkable for the activity, strength, and domination of the love of sex; and is intimately related thereto, as well as associated therewith. Witness, for example, the daily chronicle of crime, of homicide, suicide, defalcation, embezzlement, etc., ascribed directly to sexual influences, or motives associated with sexual love. Witness also the vices of intemperance so often associated with and instigated by sexual excesses, or unsatisfied sexual desires; of prostitution maintained by lust; of gambling with delusive hope of gain to satisfy immediate wants growing out of the requirements of sexual relations, etc., and the nameless disorderly sensations, emotions, and imaginations leading or driving multitudes crimeward, that originate in sexual disturbances, whether of deprivation or excess.

(*f*) The physical or structural, and consequently psychical characteristics of the defective classes of society, manifested by well-marked proclivities to mental disorder, vice, or crime, developed under circumstances often to be regarded as unfavorable for such manifestations, are reproducible, and being constantly reproduced, perpetuated, and multiplied, with a tendency to exaggeration, by intermarriage of persons of like defects, according to the recognized laws or uniformity of results of the activities of living matter called heredity.

(*g*) Society can protect itself from the danger threatened by the criminal classes by either destroying their capabilities to inflict injury upon others, or by changing their desires, and, consequently, their purposes, by which their actions are instigated and controlled.

(*h*) The deprivation of animals, including man, of reproductive capabilities, effects well-marked modification of characteristics, or changes of desires, purposes, and actions, as an inevitable sequence of altered conditions, capabilities, appetences, and necessities of the altered being, without destroying capabilities and consequent desires for the maintenance of individual existence, hence practical usefulness. Such modifications, if begun early in life, are invariably manifested by gentler and more dispassionate manners, freedom from sudden and violent emotional disturbances, and less self-assertion and obstinacy of disposition.

(*i*) Nature's method of improving a species or variety of living beings is by selection, through sexual love, of the most lovable for purposes of reproduction, the most lovable being always the strongest, most capable, and most beautiful; and the assertion of strength or capability in the struggle for existence, in which the fittest, most capable survive, and the unfit, deficient, perish.

If these affirmations are all true, as I believe them to be, then certainly no other method could be devised for the suppression of crime and reformation or improvement of the criminal and defective classes of society than this proposed—the asexualization of all convicts whose crimes, circumstantially considered, indicate constitutional depravities transmissible by descent from parents to offspring, together with such legal restraints as may be found necessary to complete its efficiency.

Let us examine its promising features a little more closely, and in detail. For purposes of intimidation it presents features second only in degree of repulsiveness and terrifying power to the death penalty itself. Multitudes of men derive nearly all conscious pleasure from the indulgence of sexual appetites, and hence regard such indulgence as the chief end of being, or value of existence. The loss of sexual ability, as a token of manhood, as well as a source of exquisite enjoyment, would be contemplated with abhorrence, and avoided, if possible, by all sane men.

For purposes of reformation, it presents features more promising than any other known method, because it is in accordance with the great facts recognized by science—that all feelings, desires, purposes, and, consequently, all conduct is definitely related to antecedent relations of living mechanisms, and may be permanently modified by permanent modifications of such mechanisms or organs. Other methods—"moral instruction" of convicts in prison, etc.—are too slow and uncertain for practical purposes.

But the most important of all the features of this proposition to asexualize all constitutionally depraved convicts, is that which promises surely, however slowly, to diminish the number of the defective classes of society by limiting, to the extent of its application, the reproductive capability of such classes. For this purpose it has no practicable competitor. It is in the line of nature's suggestion, aiding "natural selection" by destroying the procreative capabilities of the "unfit," instead of, as we are now doing, carefully preserving them by public benefactions from their own tendencies to dissolution, and complacently permitting them to multiply and accumulate by unrestricted reproduction.

It may be asked—significantly, I admit—Why not capital punishment, once for all, and have done with it? Because, I answer, the death penalty, however promptly and thoroughly efficacious as a means of contributing to a more certain and rapid disappearance of the unfit and survival of the fittest, goes beyond the necessities of the case, or the requirements of nature, and destroys the man, while emasculation only "alters" him. Furthermore, whatever may have been the effect of the death penalty in the progress of society from a savage state to its present civilization (and there can be no question of its great value in times past), it has been gradually forced, by growing sentiments of disfavor, into narrower ranges of usefulness, until now, instead of being extended to all manner of crimes and misdemeanors, from wilful murder to petty theft or trespasses, it is limited in most States to two or three grand offences, and by some States utterly abolished.

It is, in fact, only when the subcuticular ancestral savagery of our natures is aroused by some extraordinarily atrocious crime, such as the assassination of Garfield, or the murder of policemen in Chicago, that we hear a general clamor for the blood of the offenders. And even in such instances public sentiment is by no means unanimous in favor of killing the convicted criminals.

It may be safely inferred, therefore, that the death-penalty will never be restored to favor sufficiently to obviate the necessity of more efficient measures than have as yet been adopted by civilized States for the reformation of convicts and diminution of the defective classes of society.

Imprisonment alone for short terms at labor, or in solitude, however cruel or humanely practised, with "moral instruction" or without, protects society but partially, and for short intervals, and fails signally to reform the imprisoned, or diminish the numbers of the classes to which they belong. Were each man or woman returned to society from our

penitentiaries deprived of reproductive capabilities, how different would be the story.

Public sentiment might not sustain such an innovation. The public sentiment of the future is destined to be more and more informed by science, and will eventually adopt its suggestions in matters of state-craft and social economy, including criminal jurisprudence, as well as in all other affairs of life.

This world with its inhabitants is slowly but surely moving into a new and more brilliant light, and freeing itself from the shadows of ancient errors and modern superstitions. Already the hilltops of science are luminous, and men of intelligence and learning no longer dwell in an atmosphere of gloom, peopled with imaginary beings, gods, and demons, and multitudinous ghastly survivals of ancestral chimeras, standing in the relation of invisible causes of all visible effects, but moving ever on and up toward the greater light, realize the fact that with every step taken, vision becomes clearer and more comprehensive, and that positions may be occupied to-day with safety that but yesterday seemed to be dangerous, if not inaccessible.

MEDICAL PROGRESS.

Loreta's Operation upon the Stomach.—Digital dilatation for fibrous stricture of the pylorus, which was first practised by Prof. P. Loreta, of Bologna, in 1822, has already in his hands given most satisfactory results in a large number of cases. The *Riforma Medica* of February 18th contains an account of a case in which the operation was recently performed by Dr. Loreta, which is of special interest, owing to the detailed way in which it is reported. In January last a man, fifty-four years of age, but looking much older, owing to his wasted and careworn appearance, came under the professor's care, with the following history: He had been excessively intemperate both in eating and drinking, and had suffered from severe dyspepsia since 1872. In 1880 he began to be troubled with vomiting, which occurred regularly four or five hours after taking food. The stomach was visibly dilated, and a splashing sound could be heard on succussion. Microscopic examination of the vomited matters gave negative results; neither blood, starch-granules, nor sarcinæ could be detected. No tumor could be felt in the hypochondriac or epigastric regions; the abdomen yielded readily to pressure with the hand, which, however, caused a slight amount of pain. At the place where this tenderness was most pronounced, a hard fibrous cord was felt at a point corresponding to the situation of the pylorus. On January 30th, after washing out the stomach with an alkaline solution, Professor Loreta made an incision along the linea alba, from the xiphoid cartilage to the umbilicus, and exposed the stomach, which was drawn partly out of the wound, and opened about midway between the greater and lesser curvatures. The index finger was then passed into the viscus in the direction of the pylorus, through which, however, it could not be pushed. A large-sized urethral bougie, and afterward an œsophageal sound were then passed through into the duodenum. By this means the stricture was so far dilated that the operator was able to get his finger through the pylorus and draw it over almost to the abdominal wound. The index of the left hand was then also passed through on the right as a guide. The pyloric orifice was then dilated by forcible divulsion with the two fingers, a proceeding which the tightness of the stricture rendered very difficult. Finally, the wound in the stomach was closed by continuous, and that in the abdominal wall by interrupted, suture, and an antiseptic dressing was applied. On February 9th the wound was healed, and the patient had completely got rid of his troublesome symptoms. Digestion was perfect, vomiting had entirely ceased, and the man had lost the look of suffering which had been so marked before the operation. Dr. Maurizio Bufalini, who reports the case, says that not a single instance of relapse after Loreta's operation has yet been heard of.—*British Medical Journal*, March 3, 1888.

Formulæ for the Local Treatment of Whooping-cough.—The *Revue Gén. de Clin. et de Thér.* of March 1, 1888, reports the following useful formulæ:

Quiniæ hydrochlor.	1 part.
Acid. benzoic.	3 parts.

Boric acid may be used as

Acid. boric. pulv., Finely pulverized coffee	equal parts.

Bismuth. subnitrat.	2 parts.
Benzoin. pulv.	1 part.

The salicylate of bismuth may be combined in

Bismuth. salicylat., Benzoin. pulv.	āā gr. 75.
Quiniæ sulphat.	gr. 15.

Also

Sodii salicylat., Benzoin. pulv.	āā gr. 75.
Quiniæ sulphat.	gr. 15.

These powders should be as fine as possible, and may be blown into the nostrils through an ordinary soft rubber tube.

The Treatment of Diphtheria by Mercurial Fumigations.—Corbin, in the *New York Medical Journal* of March 10, 1888, describes his method of treatment as follows:

I insist, when possible, that the patient be in a room where the sunlight has free entrance, that the temperature of the room shall not be lower than seventy-five degrees, and that the air shall be kept moist by the evaporation of water. During the time of the fumigations the patient receives no medicine whatever. At the beginning and end of a fumigation, milk-punch or wine is given. This I insist upon. A child's crib with barrel-hoops across the top, secured, and over these spread a flannel blanket, makes a suitable canopy or tent. In the case of a child eight or ten years of age I volatilize from forty grains to a drachm of the mild chloride. I keep the child under the canopy twenty minutes, when the blanket is removed. This is repeated every two or three hours during the first day. After this period I expect to find the cough loosened,

giving directions to prolong the intervals of the fumigations, and at once to resort to them if the cough tightens. I have had cases where they had to be continued for over a week, but not more than two or three each day. The aphonia may not disappear for a week or two, but this need excite no alarm. Let the patient receive the most thorough alimentation. The fumes are not offensive, and as a rule the child makes no resistance after the first fumigation. Generally the patient falls into a refreshing sleep, and sometimes he will point to the lamp, indicating that a fumigation is desired. The lamp had better be powerful enough to volatilize a drachm of calomel in one minute. The lamp I have constructed does this. By this means the air of the tent is not raised to too high a temperature for respiration.

Colored Light in the Treatment of the Insane.—Dr. Ponza, medical superintendent of the lunatic asylum at Alessandria (Italy), reports some experiments which he has made on the effect of colored light on lunatics. The idea was suggested to him by the observations of Robert Hunt on the favorable effect which light transmitted through violet-tinted glass had on the development of animals and plants. Dr. Ponza selected rooms with as many windows as possible, and he had the walls painted of the same color as the window-panes. A patient suffering from melancholia, who would not eat, was placed in a room with bright red walls and windows; in three hours he became quite cheerful and asked for food. Another lunatic, who always kept his hands over his mouth to keep out air and nourishment, was placed in the same room, and the next day he was much better, and ate with a hearty appetite. A violent maniac was placed in a blue room and became quiet in an hour. Another patient, after spending a whole day in a violet-colored room, was completely cured. Theoretically this appears to be a very interesting experiment, but we have good reason to believe that in practice it is of little real service. It had one very good effect, which was that it induced the medical men who were making the experiment to spend a good deal of time and attention on the patients who were under treatment. One German medical man who visited Alessandria, said it was "most excellent for the doctors." It is probable that in some future day electric light may be used for the darker parts of asylums, and then we shall be able to see whether electric light will serve to develop vitality in men as it has been proved to do in plants. In many persons of unsound mind the whole vital energy is defective, and the medical officers often feel a sad want of something which will produce energy. Stimulants of one kind and another are tried, and do some good; but we should welcome some more general natural means of improving the general health. The asylum physician looks to food, warmth, and exercise, as his great assistants; and if electricity, or blue or yellow rays, can be added, so much the better.—*British Medical Journal*, March 3, 1888.

Sciatica Caused by Varicose Veins.—Quénu, at the Surgical Society of Paris, reported that he had observed closely very many cases at the City Dispensary, and his opinion was well formed on the fact. In sixty-seven patients who had varicose veins, eleven suffered from sciatica, which disappeared with rest, and especially when the patient took the horizontal position. As treatment, M. Quénu recommended that the patient should wear an elastic stocking reaching up to the groin. M. Berger said that the above remarks were interesting, as the number of patients who have varicose veins is very great. At the same time he thought that the stocking as advocated by M. Quénu, is attended with considerable inconvenience, inasmuch as he had observed that it leaves its position and rolls like a tight cord around the thigh, thus impeding the return of the circulation.—*Medical Press*, February 29, 1888.

Poisoning by Aconitine.—*Les Nouveaux Remèdes*, No. 4, 1888, reports an interesting case of fatal poisoning by aconitine, in the following prescription.

Quiniæ sulphat.	gr. 24.
Morph. hydrochlorat.	gr. ½.
Aconitin.	gr. $\frac{3}{100}$.

In six wafers.

Death occurred after taking the second wafer, the patient being a woman suffering from neuralgia.

Investigation revealed the fact that each wafer contained $\frac{3}{400}$th of a grain instead of $\frac{3}{600}$th as intended. The druggist, instead of dividing *each ingredient separately* into sixths, had divided the mass into sixths, and then put each mass in a capsule. Inasmuch as $\frac{3}{600}$th of a grain could not readily be weighed, especial care was indicated in dividing the whole amount ordered. The authorities censured both physician and pharmacist.

A Convenient Dressing in Circumcision in Adults.—Balance describes in the *St. Thomas's Hospital Reports*, vol. xvi. p. 198, his method of dressing the penis, as follows:

When the patient is etherized the outline of the posterior border of the glans is marked on the skin with an aniline pencil. The skin of the prepuce is slit and removed up to the aniline line. The mucous membrane is next cut away, leaving only a free edge of about one-eighth of an inch in width. Any bleeding which occurs should be entirely arrested and asepsis must be insured by frequent sponging with carbolic or sublimate solutions. Numerous horsehair stitches are then inserted, so as to bring accurately together the fresh-cut edges of the skin and mucous membrane, and subsequently, after a further sponging and drying, a piece of gauze two layers in thickness, and wide enough to reach from the root of the penis nearly to the meatus, is wrapped *loosely* round the penis, and secured by several applications of the collodion brush. The setting of the collodion is hastened by the use of a fan, so that the air is kept in motion and the patient should not be allowed to recover from the anæsthetic until the dressing is quite firm and hard.

In this manner the penis is protected by a kind of carapace, and the patient is relieved from the pain and tenderness attendant upon contact with the bedclothes or other objects. In fact, the organ can be handled as if no operation had been performed. It is hardly necessary to add that erections, which are under the usual conditions so painful, cannot occur.

The patient never had any discomfort from first to last, and the day after the operation put on his trousers without my leave, and expressed himself as desirous of taking a long walk or of going to business.

The points to note are:

(1) The operation must be aseptic.

(2) The gauze should be applied *loosely*.

The dressing can be made to extend, at the will of the operator, as far forward as the meatus externus. Half an inch, however, in front of the corona is ample. If the dressing has been put on rather tightly, and some swelling of the glans beyond the dressing occurs, this can be combated by an extension of the collodion dressing forward to the urethra, or by the constant use of iced dilute subacetate of lead lotion. When necessary, the dressing can be easily removed by slitting it up by means of blunt-pointed scissors. It is usually worn for about a week. As yet I have never found it necessary to apply it a second time.

Naregania Alata.—HOOPER is quoted by *L'Union Médicale* of February 21, 1888, as introducing to the notice of physicians this plant, a native of Malabar. It is used in infusion and decoction by the natives for bilious disorders and rheumatism. An alkaloid, naregania, is derived from the bark, which is an active anti-dysenteric remedy and emetic, resembling ipecac: its dose for these conditions is fifteen grains. In small doses it is expectorant. It may be given in powder or tincture, the wine is inert.

Acute Hydrops Amnii following Nervous Shock.—HUMPHREYS reports the following interesting case, in the *Lancet* of February 25, 1888:

Mrs. S., aged thirty-three, in her ninth pregnancy, stated that she first felt the fœtal movements on October 5th. On the same day her mother was seized with a stroke of apoplexy in her house, dying the next day. The patient was first seen on October 15th. The abdomen was then greatly distended with fluid, which had been gradually collecting since the 5th, and was very tender. She now appeared to be in the ninth or tenth month of pregnancy. There were considerable dyspnœa, some palpitation, and a small weak pulse; there was also considerable lumbar pain. The abdomen measured twenty-one inches between the superior spines of the ilium, and was very tense. Dr. Galabin saw her with me on the 17th at 9 P. M., and agreed with the diagnosis of hydrops amnii, recognizing the presence of twins. The membranes were at once ruptured, nine pints of fluid escaping. The uterus contracted well, perhaps in consequence of a dose of ergot given earlier in the day. The twins were born the following morning, before my arrival, at 9 A. M. There was only one placenta, there being one chorion and two amnions. There was free direct communication between the veins of the two cords. The half of the placenta which belonged to the second fœtus had several apopleptic clots in it, and the fluid in the unbroken membranes was "very dark in color, like blood."

Terebene. — The following formula is a convenient method of administering terebene:

Terebene	1 part.
Glycerine	15 parts.
Cognac,	
Syrup. simpl.	q. s.

The mixture should contain 32 of terebene.—*Les Nouveaux Remèdes*, No. 4, 1888.

The Solubility of Saccharin.—CRESPIE gives the following interesting information regarding saccharin, in the *Provincial Medical Journal* for March, 1888:

In cold water saccharin is only slightly soluble; in water of the temperature of 120° Fahr., it is only moderately soluble; while even in boiling water it is not perfectly soluble, but when the solution is neutralized, and carbonate of soda or carbonate of potash is added to it, the solubility is greatly increased. When saccharin is added to a solution of carbonate of potash, or of carbonate of soda, carbonic acid is freely given off, and a compound of soda or potash salts with saccharin is formed. It is found that these salts are nearly as sweet as saccharin itself, and as they are soluble they are far more convenient to use. One tabloid is fairly equivalent to a lump of white sugar. He finds that it is better to put the tabloid into the cup, and then add the hot coffee or tea, and finally the milk. In a week one would get used to saccharin tabloids, and not miss the more familiar, though hardly more palatable, cane or beet-root sugar.

Alcohol, which will dissolve so many substances on which water alone will hardly act at all, will also dissolve saccharin, and no doubt in time the manufacturer of pure unadulterated sweet wines, cordials, and liqueurs, will not forget to add it to his armory. Mosso has carefully investigated the subject, and finds that one gallon of 10 per cent. alcohol will dissolve 378.7 grains of saccharin; one gallon of 40 per cent. alcohol will take up 1391.6 grains; one of 80 per cent. will hold 2550.5; while absolute alcohol will only suspend 2118.9 grains. The reader will notice that an 80 per cent. mixture of alcohol and water takes up the largest amount of saccharin; it is, by the way, often curious, but true, that the strongest solvent, as at first sight it appears, answers worse than a weaker form of the same solvent. Saccharin is also abundantly soluble in warm glycerine. At a temperature of 224° Fahr. saccharin melts, and then is partially decomposed and gives off a characteristic odor. Professor Stutzer, of Bonn, tells us that one grain of saccharin will distinctly sweeten 70,000 grains of pure distilled water.

The Use of Creolin.—SPAETH is quoted by the *Wiener medizinische Presse*, No. 8, 1888, in reporting his results with creolin in hospital practice at Frankfurt. He employed commonly gauze dipped in two per cent. emulsion of creolin, over which he placed compresses of wood-wool or gutta-percha tissue. His cases included six severe burns, five varicose ulcers, and repeated applications of creolin to wounds which had failed to heal by first intention, and which contained sluggish, exuberant granulation. Healthy granulations formed more rapidly than under any other treatment. In a case of pyæmia following amputation of the thigh, the patient was succumbing to septic infection, and the antiseptic dressings commonly used, served to increase the necrotic process. Under treatment with gauze saturated with two per cent. emulsion of creolin, a favorable reaction occurred in two days, and recovery ensued in twenty days. Spaeth has never seen symptoms of intoxication, such as often follow carbolic acid poisoning. Eczema was never caused by creolin. Spaeth is inclined to believe that creolin belongs to the benzol group. The absence of irritating effects from creolin seem to render it a most desirable addition to our means for dressing wounds.

The Treatment of Sleeplessness.—Dr. Eccles, in the *Practitioner* for March, 1888, concludes an interesting article on the treatment of insomnia as follows:

The hot bath, the hot abdominal compress, with or without previous kneading of the belly, or the whole wet-pack modified to suit the requirements of the case, and all of these followed by the most rigid observance of the recumbent position in a warm bed placed in a quiet, cool, well-ventilated room, so arranged that direct or reflected light, whether from fire or candle, shall not disturb the patient, have been found almost invariably successful aids to sleep in the different disorders of this function not dependent on pyrexial or severely painful conditions which have come under the notice of the writer. And even in cases of severe sciatic and trigeminal neuralgias the wet-pack has been employed with good results; but for the various derangements of sleep included under the general term insomnia, these expedients are only temporarily useful to initiate, as it were, the permanent restoration of the rhythmical healthy repose of mind and body of which those for whom they have been employed stood in so great need.

To effect this permanent restoration of refreshing sleep a method of treatment is needed which must break the chain of vicious circumstances under whose thraldom the patient has lost the power to sleep. The brain, in these cases often found to have been overworked, must be allowed to lie fallow as far as possible; the stomach, which has generally suffered with the other organs of digestion from the most extraordinary maltreatment, must be coaxed back again to a regular performance of its duties; while the muscular system, which has become wasted and inert from long disuse, must be called upon to fulfil its digestive and excrementitious functions, so long left in abeyance. Under the combined influence of the recumbent position in a quiet room, away from the cares of domestic, social, or business life, carefully modified diet, and massage applied as a therapeutical agent, not without regard to the mode, duration, and extent of its administration, the methods of treatment referred to above may be carried out with the happiest result in the majority of cases.

The Constitutional Treatment of Endometritis.—Chéron has found the following formulæ useful in treating the constitutional disorders requiring attention in chronic endometritis:

A mild and efficient laxative—

Sulphur. sublim.,	
Magnesiæ calcin. . . .	āā ʒ 2½.
Potass. et sodii tartrat. . .	ʒ 5.

Picric acid may be given for anorexia, when ordinary remedies fail:

Acid. picric.	$\frac{3}{10}$th to $\frac{5}{20}$th gr.
Aquæ	1 quart.

A small glassful to be taken with common red wine at meals.

To allay persistent nausea

Potass. bicarb.,	
Potass. bromid. . . .	āā gr. 30.
Aquæ commun. . . .	ʒ 15.

of this a teaspoonful is to be placed in a glass, and to it a tablespoonful of the following mixture is to be added:

Acid. citric.	ʒ 1.
Syrup. simpl.	ʒ 1.
Aquæ commun. . . .	ʒ 30.

The dose may be repeated every half hour or hour until nausea is relieved.

For the nervous symptoms of chronic endometritis the following was found useful:

Tinct. valerian. . . .	ʒ 2½.
Spirit. melissæ. . . .	ʒ 3¾.
Aquæ menth. piper. . .	ʒ 12½.
Spirit. ætheris . . .	ʒ 10.
Aquæ destillat. . . .	ʒ 30.

Dose three or four drachms daily.

A sedative lotion may also be used, as follows:

Alcohol. camphorat.,	
Glycerin.,	
Chloroform.,	
Tinct. menth. piper. . .	equal parts.

One or two teaspoonfuls should be poured upon flannel and friction made over the seat of pain.—*Revue Gén. de Clin. et de Thér.*, March 1, 1888.

The Treatment of Diphtheria by Applications of Carbolic Acid.—The Paris correspondent of the *British Medical Journal* of March 3, 1888, writes that at a recent meeting of a medical society Gaucher read a paper on the treatment of diphtheria by removing the false membranes, and cauterizing the places from which they were taken with a concentrated solution of carbolic acid. He dissolves 75 to 150 grains of carbolic acid in 2½ drachms of alcohol, and adds to this mixture 4 to 5 drachms of camphor, with a small quantity of oil. M. Gaucher obtained excellent results with this treatment in two cases. M. Joffroy stated that he employed chloral as a local application in diphtheria. This substance has more powerful parasiticide properties than carbolic acid. M. Joffroy washed the throat with a two per cent. solution of chloral; he then applied a one-fifth solution to the false membranes, which disappeared; the throat remained ulcerated; the application of the solution was continued. By this means diphtheritic angina is transformed into erythematous angina. This treatment could not be applied to children. M. Gaucher stated that he had tried chloral, but had found carbolic acid more efficacious. M. Blachez believed that false membranes might be destroyed in a less painful manner with petroleum oil. M. Gaucher remarked that the special object of his treatment was to destroy the false membranes in order to prevent secondary infection. M. Richard stated that the addition of one half per cent. of tartaric acid rendered carbolic acid much more powerfully antiseptic.

Gymnema Sylvestra, a new Therapeutic Agent.—The bitter taste possessed by certain drugs, notably quinine, is often found a serious obstacle to their being prescribed for young children, and it has long been held to be desirable that we should possess some powerful agent of agreeable flavor, capable of disguising such taste. Saccharin was supposed to be a near approach to this end, but there is, apparently, a still more promising agent

likely soon to be available, in the shape of gymnemic acid, derived from an Indian plant, the Gymnema Sylvestra. A few drops of this substance largely diluted with water will, it is said, if taken into the mouth, entirely destroy the power of tasting sweets or bitters swallowed in from two to four hours afterward. Gingerbread eaten under these circumstances produces only the hot taste of ginger to be perceived, and ordinary quinine sulphate leaves the sensation merely of so much chalk in the mouth. Its discoverer, Dr. D. Hooper, states that the acid bears many resemblances to chrysophanic acid, and in his opinion it will be found of much service in disguising the nauseous taste of many pharmacopœial preparations.—*Medical Press*, March 7, 1888.

The Treatment of Uterine Fibroids.—The theories and practice of Apostoli have led to much discussion on the treatment of fibro-myomatous tumors of the uterus, more conveniently termed uterine fibroid disease. This method, like everything else in the universe, is the effect of a cause. In this case, the cause is the danger of amputation of the uterus, balanced by the uncertainty of palliative measures. Electricity is a fascinating middle course between physic, often so impotent, and the knife, often so fatal. A fibroid uterine tumor may assume gigantic proportions, and cause serious trouble; but its increase in bulk is never rapid, in the same sense that the growth of a cyst or a sarcoma is rapid, and the menopause is often its limit. Yet it may be the source of pain, menorrhagia, and often troublesome and dangerous symptoms. Then operative measures are suggested. In the case of hysterectomy or oöphorectomy, the operation is always perilous, and depends, perhaps more than any other surgical operation, on the experience as well as the mere skill of the operator. Hence gynecologists turn to palliatives or electrolysis. With respect to palliatives, it is certain that almost any rational treatment tends to reduce the size of a large fibroid tumor. Rest, moderate purgation, and the administration of ergot without any of those incompatibles with which it is often given, all appreciably affect tumors of this kind for a time. Authorities of the negative or expectant school believe in Woodhall Spa. The amount of benefit derived from palliative treatment is ever uncertain, though permanent arrest of the tumor is occasionally effected. When an operation is contemplated, the choice lies between oöphorectomy and hysterectomy. Surgeons without special experience too often look on oöphorectomy as an easy and safe operation; but the facts have shown that, in the case of fibroids, it is often difficult or impossible, and that when possible it is perilous, owing to the difficulties experienced in securing the pedicle. Enucleation during abdominal section is not justifiable. Hysterectomy may be performed as an intraperitoneal or an extraperitoneal operation. The intraperitoneal variety is logically the better, but it is extremely dangerous. No surgeon can calculate how to tie each suture firmly enough to check hemorrhage, yet not so tightly as to cause sloughing or tearing of the thread through its track; still less can he guard against contraction or relaxation of the uterine tissues around the uterus after the return of the stump into the abdominal cavity. The extraperitoneal operation is less dangerous; but it requires nerve, dexterity, and experience, at least of other surgeons' practice. Statistics are absolutely worse than useless as guides to surgeons devoid of special experience; and decision, sad to say, is too frequently qualified by personal predilection for some operation, or by dislike for another. Unconscious hypocrisy often influences inexperienced operators. Apostoli's electrolysis is fascinating because, unlike palliative treatment, it means "doing something;" whilst many believe that it involves neither the difficulties nor the risks of operation. Experience is proving, however, that Apostoli's method requires great skill and demands many precautions, and that it is not altogether free from danger. As to permanent results, even so respected an authority as Dr. Keith depends upon the words of another, and that other is Apostoli himself. The conclusions to which we are led by the above facts are that palliative treatment is the only course which a practitioner without special experience can justifiably pursue in the case of uterine fibroids; and that the relative merits of oöphorectomy, hysterectomy, and electrolysis can only be decided by experts.—*British Medical Journal*, March 10, 1888.

An Elixir of Paraldehyde.—The following formula has been used with moderate success, though many physicians who have tried paraldehyde have given up its use, chiefly from the disagreeable breath acquired by those who take it:

Paraldehyde	ʃ℥ij.
Spirit of chloroform	ʃ℥iij.
Tinct. of vanilla	ʃ℥ss.
Syrup of raspberries	ʃ℥ss.
Aromatic elixir	enough to make ʃ℥iv.

Dose for adults, two fluid-drachms, containing one fluid-drachm of paraldehyde.—*American Druggist*, March, 1888.

Retrograde Catheterism.—The *Medical Press* states that at a recent meeting of the Paris Academy of Medicine, M. Tillaux related such a case before the Société de Chirurgie, which is full of interest. A man, aged forty-three, came to him suffering from a cicatricial stricture of the urethra, the consequence of falling *à cheval* on a piece of timber. Having found it impossible to introduce a sound, M. Tillaux tried external urethrotomy, but without better success. He then determined to cut down on the bladder over the pubes and perform catheterism from behind. After much trouble he succeeded, and the patient made a good recovery. M. Schwartz said that in a similar case he plunged a large curved trocar through the prostate into the bladder with every satisfaction. Several other members spoke in the same sense.

Salicylate of Bismuth in Dysentery among Children.—HALE, of the Philadelphia Polyclinic, has attained excellent results in the use of the following prescription:

℞.—Bismuthi salicyl.	ʃ℥ij.	
Tr. capsici	gtt. xij.	
Spts. ammon. aromat.	ʃ℥iss.	
Pulv. acaciæ	℥ij.	
Aq. cinnamomi	q. s. ad. ʃ℥ij.	M.

Sig.—Teaspoonful every two hours, for a child from three months to one year of age.—*The Polyclinic*, March, 1888.

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SATURDAY, MARCH 31, 1888.

A CÆSAREAN REVOLUTION IN PROGRESS IN THE UNITED STATES.

FOR a number of years prior to December, 1886, which now appears to have marked a turning point for the better, there was a gradual increase in the mortality of both women and children in Cæsarean cases in our country, until the death-rate reached for the three years preceding the above date, 93 per cent. of the former, and 87 per cent. of the latter. In the year 1884, there were six operations, without the saving of a woman or child; in 1885, there were five, saving one woman and one child; and in eleven months of 1886, four, with one child saved; the entire year, saving one woman and two children. Under fifteen operations, fourteen women and thirteen children were lost.

Prior to December, 1886, there were nine Cæsarean operations in American hospitals, under which not one woman was saved; seven of the children were extracted alive, of which one lived thirty-two hours; another, a few days: a third, thirteen days: and a fourth and fifth, a year each. The initial hospital operation was performed at Bellevue, New York, in 1860, by Prof. Fordyce Barker, upon a woman who had been two days in labor; was affected with pelvic exostosis, and bore the marks of syphilis. The child only was saved; grew to be a fine healthy girl, and may possibly be still living. Not one of the nine hospital cases can be said to have been in a *favorable* condition at the time of the operation, and one was actually moribund. The Sänger method of closing the uterine wound was adopted in three operations, but the cases succumbed notwithstanding, in consequence of their unfavorable character; one being the subject of cancer; another, much exhausted by a long labor; and the third, weak and anæmic from ante-partum hemorrhage.

With hospital case No. 10, December 16, 1886, commenced a new era in our maternity Cæsarean deliveries, as the operation was elective, early performed, and saved both mother and child, who were reported as alive and in good health on March 8, 1888. The woman had been three times delivered by craniotomy, and being anxious to have a living child, willingly entered the Huron Street Hospital, of Cleveland, Ohio, for the purpose of saving the fourth, by the Cæsarean section. Here she was operated upon according to the Sänger method, after a labor of twelve hours, and before the membranes were ruptured, by Prof. H. T. Biggar, who employed sixteen uterine sutures. The patient was a dwarf, of four feet high and sixty-five pounds weight, who belonged to Columbiana County, in which there were two successful Cæsarean sections, in 1833 and 1834.

Hospital operations 11, 12, and 13, were all performed in 1887, in Bellevue, by Prof. W. T. Lusk, saving all of the women and two of the children; the third child dying of tetanus in thirty-six hours, due probably to a head injury, from long uterine pressure; all were Sänger operations. Case 11 has been reported, the others have not been. Cases 11 and 12 were in labor but a short time; but case 13 was in the sixth day of her suffering when received. She made a slow and remarkable recovery, with several almost fatal drawbacks, as will be seen when the case is reported. Prof. Lusk gives great credit for his final success to the Sänger method, and its careful technique.

Hospital operation 14 was less fortunate in its results, as only the child was saved. The woman was of African blood, and twenty years old, and was under the care of Dr. L. Ernest Neale, in the Lying-in Hospital of the University of Maryland, Baltimore. Attempts were made to deliver her by the Tarnier forceps as modified by Prof. W. T. Howard, by which the fœtal head was very seriously wounded. After a labor of fourteen and a quarter hours, during which a trial of over an hour was made with the forceps, the operation was performed as by the original method of Sänger, muscular resection and

separating the peritoneum being found necessary to secure symperitoneal closure. The patient never rallied, and died of shock in forty-four hours. Wounds ununited; that of the uterus unhealthy in appearance. In attempting to avoid the use of the knife, the case was made unfavorable for success.

Hospital case 15 was operated upon in good season, at the Maternity of Blackwell's Island, New York, in February, 1888, by Prof. Henry J. Garrigues, with entire success to mother and child. Six deep and eight symperitoneal sutures were used. The particulars of the case will shortly be given by the operator. This was his second operation, the first having been performed in October, 1882, upon a woman prostrated by ante-partum hemorrhage, and bearing a recently dead fœtus. We heartily congratulate him upon having had this time a favorable case for the operation, and for his success in its management.

Besides the six hospital cases related, there were five in private houses, making eleven, in a period of fifteen months, eight of which were in 1887. All of the operations were by the method of Sänger but one, although in some the technique was not rigidly adhered to. Six women and eight children were saved, or $54\frac{6}{11}$ and $72\frac{8}{11}$ per cent. respectively. Of the five cases operated on in private practice, only one recovered, although three children were saved. This is reversing the experience of the past, where all cases saved were private, and all in hospitals died. To show that the change for the better in the last fifteen months is a remarkable one, we have only to go back over our record prior to December, 1886, until we find six operations that were not fatal, and we will note the fact that we have passed over a list of thirty cases in chronological order, covering eight years, under which only nine children were saved, or one more than out of the last eleven.

We are now beginning to realize practically the benefits of *early operating*, as in contrast with the dangers of *delay*, so fully demonstrated in the past. The adoption of the Sänger method, with the use of the Esmarch tubing, and asepsis, failed, until with them were associated the avoidance of futile attempts at delivery, and a recognition of the importance of prompt action in the use of the knife. We pointed out the dangers of continued uterine action long before the Sänger method was introduced, and we are more than ever convinced that the early union of the uterine wound will depend very much upon the sound or unsound condition of the muscular tissue and endometrium, to preserve which in their integrity there should be a moderate degree only of contractile action, no internal manipulation or use of extracting instruments, and the child should be vigorously alive. We admit that women do recover after long labor, the use of instruments, version, craniotomy, and the presence of a putrid fœtus *in utero;* but, on the average, an early elective operation will be much the safer, and be followed by the most rapid recovery. "*Shock and exhaustion*," so often recorded as the cause of death, really begin in a condition which exists prior to the operation, and is exhibited by an elevated temperature, rapid pulse, and great bodily weakness. In fact, the woman is worn out by muscular effort and the endurance of suffering, and the prognosis of her case, in view of a severe abdominal operation, must be unfavorable. A case regarded as a "favorable" one at the time when a Cæsarean operation is undertaken, will sometimes die; but such are much less likely to do so than "unfavorable" ones are to recover.

The fear of a fatal result under gastro-hysterotomy has had much to do with making the result fatal. But for this the operation would have been much more frequently early and elective, instead of late and compulsory. We have been too much influenced by English writers and statistics, which are antagonistic to the Cæsar-cut, and favor craniotomy. German successes have at last created a feeling in favor of the former and against the latter in our country, the fruits of which are seen in the saving of four women in succession in New York in a period of eleven months. We are now enabled by the results in our own hospital cases, to show what may and ought to be done, with equal credit, in private practice, particularly in the open country and smaller towns, where, in our early days, the least mortality occurred.

What is wanted now is a better acquaintance with pelvimetry, and the steps of the improved operation, as it is performed in Leipzig, Dresden, and New York. The coming reports of Zinke, of Cincinnati, and Lusk and Garrigues, of New York, will furnish valuable practical instruction to those who ought to be fully informed upon this important abdominal operation, so as to be ready in a case of emergency, to meet its requirements with skill and promptness. When the record of the first hundred Sänger operations is published, many readers will be astonished at its marvellous results, particularly in Germany,

and at its low rate of mortality as compared with the Porro-Cæsarean section. Thus far the United States count fifteen cases, with nine deaths and ten children saved; not a very creditable record as compared with that of Continental Europe; but we have commenced to improve it, and hope to continue in the future.

VACCINATION AGAINST TYPHOID FEVER.

Chantemesse and Vidal communicated to the Société de Biologie, at the meeting held March 3d, some interesting observations on vaccination against typhoid fever. They claim that in mice inoculated with cultures of typhoid bacilli a disease is produced, with lesions the same as in human typhoid fever. Mice inoculated with bouillon in which colonies have lived, but which no longer contain the bacilli, resist subsequent inoculation with the most intense typhoid virus. From the large number of observations, this would seem to be well established. On the other hand, mice inoculated with bouillon in which indifferent microbes had grown, such as the bacillus subtilis, did not resist, and were not in the slightest degree protected against the typhoid virus. The saturation of the organism with the soluble chemical substance produced by the typhoid bacillus granted immunity from the effects of the fresh virus. The observations are of value as illustrating the influence of organic substances produced by the growth of bacilli, and they indicate, too, the direction in which we may hope for practical results from bacteriological work.

THE NEW SURGEON-GENERAL OF THE NAVY.

The President has nominated Dr. John M. Browne to be Surgeon-General of the Navy, to succeed Dr. F. M. Gunnell, whose four years term in that office expired on March 26th. Dr. Browne is a native of New Hampshire, entered the Medical Corps of the Navy in 1853, and received his commission as Medical Director in 1878. He was the surgeon of the "Kearsage" during her memorable fight with the "Alabama," and his description of the battle, published in *The Century*, is a very graphic bit of war literature. After the war he was for several years on duty on the Pacific Coast. Since 1879 he has been on duty in Washington. He organized the Naval Museum of Hygiene, and was in charge of it for the first five years of its existence, and he was the delegate from the Medical Department of the Navy to the International Medical Congresses of London and of Copenhagen. The Medical Department of the Navy is to be congratulated upon his appointment, for he is a skilled executive, an accomplished medical officer, and a cultivated gentleman.

The roll of graduates in medicine has been increased during the past fortnight by the following additions: University of Louisville, 100; Baltimore Medical College, 17; and College of Physicians and Surgeons, Baltimore, 77.

The leading physicians of Massachusetts have just sent a remonstrance to the State legislature against the passage of any law allowing the manufacture of illuminating gas containing more than ten per cent. of carbonic oxide, as the intensely poisonous properties of that element of gas are well known, and are dangerous to health and life.

Commissioner Bayles, of the New York Board of Health, in an official communication, warmly praises several of the medical members of his staff, who were not deterred, even by the weather of that terrible Monday (March 12) from attending to their duties. One of them, especially, who has to deal with contagious diseases, is referred to enthusiastically by the Commissioner as a hero, both physically and morally, for the energetic and oftentimes ingenious work performed by that inspector in going to remote places for cases of smallpox, and removing them to the hospital, under difficulties that seemed almost insurmountable. There were others of the medical inspectors who did not spare themselves, even during the highest stress of the blizzard, while looking after their cases of contagious disease. Acts of devotion to duty, less than these, would in some countries be promptly recognized by the award of some form of medal or decoration, here they are taken for granted and presently forgotten.

A committee, representing the undergraduates, the Hospital staff, and the Faculty of the Medical Department of the University of Pennsylvania, has been formed to arrange for a celebration of the fiftieth anniversary of Prof. D. Hayes Agnew's graduation in medicine. It is proposed to have, on Tuesday, April 24th, a jubilee meeting of the Alumni, Faculty, and students in the chapel of the University; subsequently a supper will be served in the college building. A handsomely bound volume of the autographs of those subscribing will be given

to Dr. Agnew, together with some other souvenir of the occasion. All the Alumni are invited to participate. The subscription has been fixed at three dollars, payable by check or otherwise to Dr. James Tyson, at the University, not later than April 10th.

THE New York Academy of Medicine has issued an appeal to the profession and to the public for contributions toward the erection of a fire-proof building, which is an immediate necessity for the accommodation of the Academy and its growing library. The Academy owns its present building free from debt, and has $100,000 in its building fund. It is estimated that in addition $250,000 are requisite to enable the Academy to erect such a building as it requires, and a large committee of professionals and laymen has been formed to solicit this amount.

DR. WHARTON SINKLER has been elected Visiting Neurologist, and Dr. Edward P. Davis Visiting Obstetrician, to the Philadelphia Hospital, Blockley.

THE Annual Address before the Alumni Association of the Jefferson Medical College, Philadelphia, will be delivered by Professor Austin Flint, of New York, in the lecture-room of the College Hospital, on Monday evening next, at 8 o'clock. Subject, "The American Medical Student."

AT the annual meeting of the Association of the Alumni of the Long Island College Hospital, held March 7, 1888, the following officers were elected:

President.—Charles E. de la Vergne, M.D., '78.

Vice-President.—F. H. Colton, M.D., '64.

Secretary.—H. Messenger Ayres, M.D., '80.

Cor. Secretary.—Robert L. Dickinson, M.D., '82.

Treasurer.—Charles N. Dixon Jones, M.D., '82.

The Alumni Prize of one hundred dollars was awarded to A. H. Buckmaster, M.D., '83, for an essay entitled "The Galvanic Treatment of Fibromyomata: An Experimental Research." Honorable mention was made of the essay by Charles N. Dixon Jones, M.D., '82, entitled, "Etiology and Pathology of Rachitic Deformities, with Report of One Hundred Osteotomies without Suppuration."

REVIEWS.

THE YEAR-BOOK OF TREATMENT FOR 1887. 12mo, pp. 340. Philadelphia: Lea Brothers & Co., 1888.

THIS is a most valuable review of current medicine for English-speaking practitioners. It surpasses the majority of books of its kind in that it is a critical review in which the element of criticism is of practical value. Its list of reviewers contains the names of many English medical men well known in America, whose names are a promise of good material.

The objections raised against manuals and summaries we do not think apply in this case; the book is not intended as a text-book, and it is not a labor-saving device for the benefit of students; but it is such a survey of the field of medicine that each reader cannot but find matter of value in his especial field of study. The mass of medical literature which is current is so despairingly great that to have the gist of it, with a reference to the original, and a thoroughly competent review as an indication of its value, is an unspeakable blessing to one who has the ambition to keep up with what the world is learning in medicine.

SOCIETY PROCEEDINGS.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, March 5, 1888.

THE PRESIDENT, C. L. DANA, M.D., IN THE CHAIR.

DR. DANA presented the report of a case of

THOMSEN'S DISEASE,

with specimen of muscle, in some respects a typical case. The patient was a male, thirty-five years of age, single. He had been delicate as a child and at fifteen or sixteen had masturbated, but not to excess. At fourteen years he had developed talipes varus in the left leg, but tenotomy had been performed with cure. The symptoms of the disease in question had not appeared until the twentieth year, when the patient had commenced to notice stiffness of the hands and difficulty in opening the hands when closed; also stiffness of the leg and of the muscles of mastication. The patient tired easily, especially in the arms. Until recently he had had a high-pitched child's voice and a child's larynx. Erections were incomplete, and there was mental difficulty in concentrating his thoughts. The muscle development was good. Measurement around the biceps gave ten inches in both arms. The dynamometer showed forty degrees in the right hand, and thirty-eight in the left, the normal measurement by the reader's dynamometer being forty-five to fifty. There were tonic contractions of the calf muscles and of the pillars of the fauces. Striking the muscles of the arm or forearm caused tonic contractions in these muscles. Striking the biceps with the percussion hammer would cause a welt and a myoid tumor as well. There was no increase of irritability to mechanical stimulation in the nerves. By galvanism Erb's reaction was obtained. There was increased muscular irritability and a closure tonic contraction which persisted as long as the current continued to be passed. There was closure tetanus both to the cathode and the anode. There was no opening contraction to either pole. A peculiarity of the reaction to faradism was that in the arm the contractions persisted after the current ceased to be passed. There was no ankle clonus, no increase of the reflexes, and no spastic condition. In the eye the fundus was normal, but there was a fibrillary contraction of the

muscles of the lid. There was vasomotor weakness, the hands and feet were red, and easily became cold.

A piece of the supinator longus had been removed, and for comparison a piece of the same muscle from the reader's own arm. These specimens had been placed in weak alcohol and stained with picro-carmine and bismarck-brown. The specimen taken from the patient showed increase of the nuclei of the sarcolemma, an increased number of fibres, and in addition a dichotomous division of the fibres, such as was found in the muscle of the heart. This was characteristic of Thomsen's disease, and was supposed to indicate reversion to an earlier type. The tonic contractures of this disease, too, were characteristic of unstriped muscle fibre.

Dr. George W. Jacoby had examined the specimens and compared them with the specimens from his own case. He did not consider this the typical case which Erb's monograph had described. Erb had excluded all of the published cases but eight. Erb's typical case showed no disease of the central nervous system. In Dr. Dana's case there was at least a suspicion of such disease. The reactions of the muscles, too, were incomplete or failed to comply with the requirements as given by Erb. The speaker did not, however, believe in Erb's lines. He thought they are too close. While this case did not come under the heading as limited by Erb, it did come under the name as understood by others. Erb's theory is that of a disorder of the muscles themselves, a congenital malformation of the muscular system. If the fissuring of the muscles and the increase of nuclei in the case under discussion were dependent upon a central affection, this alone was an interesting fact. It would demonstrate that microscopically alone, a diagnosis of myotomia congenita could not be made. Our knowledge of primary muscle affection is not yet on a solid basis. It was possible that there was first trouble in the central nervous system from which the other proceeds.

Dr. C. Heitzmann had examined the specimens with a low power, and had been impressed with the belief that this was not a genuine case of Thomsen's disease. In the typical case the nuclei of the muscles were augmented. The reader of the paper had made Erb's mistake when he spoke of the nuclei of the sarcolemma. The sarcolemma is a structureless membrane. There was also augmentation of the sarcoblasts or muscle corpuscles. There was too much muscle substance from the earliest period. Hence, the name myotomia congenita. Dr. Dana's case, on the contrary, could not be called congenital, as the disease had not developed until the twentieth year. Second, the muscle fibres were not distinctly augmented in size. If compared with those in Dr. Jacoby's case the difference was marked. Third, the fissuring was not prominent. For these three reasons he was loath to accept the diagnosis. He was, on the other hand, unable to tell what else the condition could be.

Dr. Emmerson had examined the eyes. There was no insufficiency of the muscles, and the pupils had reacted properly.

Dr. Starr realized that we could not yet lay down any positive deductions in regard to electrical reactions. In degeneration we got the pure reaction of degeneration, an intermediate reaction of degeneration, and the normal muscle reaction. Erb had given the reactions for three cases only. Other cases might not substantiate their results. He considered Dr. Dana's case valuable, and one to be put on record. For reliable data a large number of cases are required. Even Dr. Heitzmann's objection of muscular anomalies is not fatal to the theory of its being a case of Thomsen's disease.

Dr. Dana explained that he had not called the case one of myomotomia congenita, but an atypical case of Thomsen's disease. It remained to be proved whether myomotomia is always congenital. He had recently seen a case which commenced at the eighth or tenth year. Since Erb's book, four additional cases have been reported besides his. He agreed with Dr. Heitzmann that the enlargement of the fibres was not positive. He had, with a stage micrometer, measured the fibres in the specimen from Dr. Jacoby's case, in that from the case under discussion, and in that from his own arm. He had found the fibres in the first $\frac{1}{400}$ to $\frac{1}{300}$ of an inch broad; in the second, $\frac{1}{250}$ to $\frac{1}{400}$; and in his own, $\frac{1}{450}$ of an inch. Thus, in the case under discussion, some of the fibres were larger and some smaller than the normal. The increase of the nuclei, however, was, in some of the specimens, shown typically as in Erb's plate. He acknowledged that the fissuring might have been produced artificially by tearing. Electrically there was greatly increased irritability of the muscles, both to galvanism and faradism. The contractions were tonic, with closure tetanus. There was normal excitability of the nerves. Clinically, the patient presented the phenomena of Thomsen's disease. It remained to be proved whether the phenomena of Thomsen's disease could be produced by disorders in which the central nervous system was involved.

Dr. Starr presented a specimen of

TUMOR OF THE BRAIN.

The patient was a woman, at the time of her death fifty-six years of age, who for two years had presented the general symptoms of tumor of the brain—vertigo, projectile vomiting, dulness of the mental faculties, and optic neuritis. During the last five months she had been carefully observed, but without obtaining any evidence which would locate the tumor, if one occasion were excepted, when, during an attack of vertigo, she fell forward and to the right. This was not a permanent symptom, and was the only evidence pointing to cerebellar disease. The tumor was of the size of a hen's egg. It was found on the under surface of the tentorium, simply resting upon and compressing one lobe of the cerebellum. There were no adhesions, and it was unfortunate that no symptoms had pointed to its location, as it might have been easily removed. In 1878, Nothnagel had remarked that tumors of the lateral lobes of the cerebellum did not give rise to the symptoms of incoördination common to other cerebellar tumors.

Dr. J. West Roosevelt presented the report of a case of

BASEDOW'S DISEASE, WITH AUTOPSY.

The case was one of negative interest. The patient had been admitted to the wards of Roosevelt Hospital, May 25, 1887. The patient was a female, widowed, forty-seven years of age, a housekeeper. Both the personal and family history were good. Two years before admission, the patient had commenced to complain of palpitation, dyspnœa upon exertion, and swelling of the throat, which was largest upon the right side. The patient could not lie upon the right side. In the course

of a year the eyes commenced to protrude, and at the time of entering the hospital she had a profuse watery diarrhœa.

The pupils were found to be equal, the reaction to light and accommodation good. The lids did not follow the eyeballs. The neck measured thirteen inches around the lower thyroid region, and ten and a half inches around the upper thyroid region. There was dysphagia to solid food. The pulse was 100 to 120, and the respiration 38. The apex beat was found in the fifth space, mammary line. There was epigastric pulsation, and the area of dulness was slightly increased. There was a short systolic murmur at the apex. There was a systolic thrill over the jugulars, and a continuous venous hum. The pulmonary resonance was exaggerated. The veins of the retina pulsated, the arteries did not. There was no tension. The patient lived until May 31st. She suffered from a watery diarrhœa and restlessness, but was not otherwise sick. In walking to the bath-room, one evening, she fell dead. Autopsy showed the thyroid reduced in size, but still moderately enlarged, and of a pink color. The kidneys showed a trace of fibrous tissue, but otherwise the organs were normal. There was apparently nothing abnormal in the medulla, nor in the sympathetic or vagus nerves. Microscopic examination of these parts also showed nothing.

Dr. W. O. Moore had seen twelve cases, all females, average age forty years, the youngest thirty-one and the oldest forty-five years. Ophthalmic examination had showed simply enlargement and tortuosity of the blood-vessels. Great relaxation of the bowels had been present in one of the cases, having as many as ten evacuations in the day, which it was impossible to control. Electricity had been of no avail in these cases. All had presented the three characteristic symptoms—exophthalmos, thyroid enlargement, and rapid heart action. All had the symptom to which von Gräfe first called attention, namely, a disturbance of the usual coördination of the movements of the eyeball and the upper lid, so that when the patient looks downward below the horizontal meridian, the lid no longer follows the eyeball in its motion, but halts in its course. This fault in the action of the lid was supposed to be due to some defect in the orbicularis, and was not present in cases having prominent eyes from other causes. Occasionally the prominence was so great as to cause the eye to be exposed at all times, both when waking and asleep. In one case in his experience, suppuration had occurred, and the eye had been lost.

The patient, a female, aged forty-five years, stated that when a child she had lost the sight of the right eye through an accident, that one year before coming under observation she had noticed commencing enlargement of the neck, dyspnœa upon exertion, and prominence of the left eye. Six months later, vision for near objects commenced to fail, and four weeks before coming under notice the left eye had become painful and inflamed. Examination, December 13, 1886, showed in the right eye phthisis of the bulb, total corneal leucoma, and exophthalmos so marked that although the eyeball was atrophied the lids were as full as in the usual healthy state. The eyelids on this side covered the globe fully when shut. In the left eye the exophthalmos was so great that the lids were retracted to their full extent, and the eyeball was dislocated through the commissure of the lids. The ocular conjunctiva was chemotic, and the cornea was cloudy through its whole extent. At the upper border of the cornea was a serpiginous ulcer. In other words, there was present a keratitis from loss of nutrition and exposure to the air. The pulse was irregular at 110. The patient was admitted to the Post Graduate Hospital, the outer canthus was cut, hot water applications were made, and the parts were protected by lanolin. In spite of treatment, perforation took place, with escape of the vitreous and lens. The eye began to recede, and phthisis bulbi developed.

Had this case been seen earlier, the writer would have united the upper and lower lids, thus covering the eyeball. At the end of a few weeks the lids would have been reopened, when, as a rule, the exophthalmos would be found improved, and the corneal trouble removed. For constitutional treatment, the patient should receive digitalis, ergot, and tonics. This case was remarkable from the fact that an eye was lost by suppuration, and that this loss was associated with phthisis in the other eye. The loss of an eye from exposure is so rare that the writer knew of but ten reported cases in this country, while Wells reports only one case.

Dr. Starr had been interested in the report of Dr. Roosevelt's case. The fact that no lesion had been found in the sympathetic in this case, did not, of course, prove anything conclusive. Ross had reported eight cases in which such lesion had been found out of twelve cases, as far back as 1882. The pathology, however, was not clear. It was difficult to understand how any one lesion could produce all of the phenomena of this disease. The hypothesis accepted by Gowers was that of lesion of the vagus nucleus in the medulla. The rapid pulse would be accounted for by the loss of the inhibitory power of the vagus. It was known, too, that vasomotor disturbances were produced by irritation of the medulla in this region. The speaker had some time ago collected twenty-one cases of lesion of the medulla, in eight of which the lesion was in its upper part, in the region of the nucleus of the tenth nerve. In all these cases there were subjective flushings and objective increase of perspiration; while in the thirteen in which the lesion was in the lower part of the medulla there were no vasomotor symptoms whatever, thus substantiating the hypothesis of physiologists that there is a vasomotor centre in the medulla, and that this centre is in the neighborhood of the nucleus of the tenth nerve.

He had personally observed seven cases, five in the female and two in the male. In all but one, palpitation of the heart had been the first symptom. This disproved the theory that the goitre was primary, and that the other symptoms were due to the pressure of the tumor upon the pneumogastric nerve. The pulse had ranged between 90 and 155. In all but one the eyes had been prominent. In six there had been nerve symptoms, in four tremors, in four von Gräfe's symptom, in six flushes. Mental disturbance had been present in one case, in which there had been delirium every night for several months, and subacute mania for several weeks. The first symptom in this case had been insomnia, which resisted treatment. The reader supposed it to have had its origin in a condition of the vessels of the brain similar to that in the back of the eye and the thyroid gland. Digitalis had done no good in his experience. Ergot and bromide had quieted the tremor, but no drug which he had tried had reduced the heart.

He had used electricity according to Benedict's recommendation, but without result. He had himself when in Vienna, watched the treatment of three cases in which Benedict had given a good prognosis, but had failed to find any reduction of the pulse while galvanism was being used. In his own cases he had tried every method described as galvanization of the sympathetic; he had placed the poles upon either side in front of the sterno-cleido-mastoid, behind the sterno-cleido-mastoid, and at the back of the neck and epigastrium, carrying the current as high as nine milliampères, which was as strong as could be borne with a small electrode, and he had never been able to obtain any retardation of the pulse. Dr. Janeway expressed himself as having had the same experience.

Dr. Rockwell had met about thirty cases of this disease, and in nine cases he had obtained an approximate cure. He had employed diet, galvanism, and very full doses of digitalis, bromide of zinc, ergot, and iron. He had authentic records of his results. He believed that the cases not benefited by treatment were organic and that those benefited were functional in origin. Those having all of the cardinal symptoms were more often responsive to treatment than those in which the symptoms were more incomplete. He recalled a case in which there was a pulse of 110 reduced to 80. There was puffiness of the eyelids in this case. In the galvanic application one pole had been placed over the eyelid and the other behind the sterno-cleido-mastoid muscle at its upper third. In another case, presenting the three symptoms for several years, the pulse had ranged from 130 to 150. There were dilatation of both pupils and a pulsating swelling over the solar plexus. This patient was placed upon a milk diet and persistently treated for many months, when the pulse had fallen to below 100 and the swelling of the thyroid and the exophthalmos had become less.

Dr. Starr asked whether Dr. Rockwell had obtained reduction of the number of heart beats while the current was being used; also whether he had ever obtained paling of the face and dilatation of the pupils, phenomena which follow galvanization of the sympathetic when needles are used.

Dr. Rockwell replied that he had not made his observations during the application, but that subsequently such slowing had been demonstrated. Lowering of the pulse is also a very common result of general faradization.

Dr. George W. Jacoby considered exophthalmic goitre a rare disease. For eight or nine years he had seen in his dispensary from 600 to 700 neurological cases a year. Not more than a dozen of these had been cases of exophthalmic goitre. The patients had been regular in attendance, and treatment had been persistent, but he had tried every means heralded without result. Subaural galvanism had been without effect upon the color or the pulse. He considered the disease a hopeless condition. Bodily and mental rest furnished about all which could be done. He had tried faradism according to the recommendation of Vigouroux, but also without result.

He thought the exophthalmos the least constant symptom. Where goitre is present one side of the neck is usually larger than the other. Some say that the right is always the larger. This he could contradict, as in a case which he had recently seen with Dr. Birdsall, the enlargement had been equal upon both sides. Von Gräfe's symptom is not always present. Tremor is often the first symptom. In one case in his experience tremors had existed for a year before the development of the other symptoms. At the end of the second year these had become well-developed and bronzing of the skin also was present.

Vigouroux has stated that the electric resistance is diminished in all cases and even in the commencement of the disease. This, if true, would be an important diagnostic point. In 20 cases published by Wolfenden this lowered electrical resistance was present. Two of these cases are published in full. In one of the latter the resistance was only 300 ohms. It was mentioned that there was profuse sweating in this case. In the second the resistance was 200 ohms. Of this case it was said that there was clamminess of the surface and sweating. In the other eighteen cases the resistance was from 500 to 1300 ohms. The speaker said that the standard of resistance, however, varied according to the method used. It had been given as high as 300,000 to 400,000 ohms by Jolly. Gärtner gave it as 30,000 to 40,000 and here we estimated it as at 1000 to 3000 or 1000 to 4000; he had recently tested the resistance in three cases, his method having been to place the body in the circuit, the electrodes being equal in size, and wet. When the galvanometer needle ceased being deflected the body was taken out of the circuit and a resistance coil inserted until the deflection of the needle was again brought to the same point. The amount required equalled the resistance of the body. Comparative observations were at the same time taken upon himself. The first case was that of a female twenty-eight years of age with exophthalmos, palpitation, and sweats. The resistances obtained were as follows:

Through the palms, patient . .	6000 ohms.
" " self . .	8000 "
" the goitre, patient . .	1200 "
" " self . .	2400 "
Through the posterior part of the neck, patient	1400 "
Through the posterior part of the neck, self	2400 "

The second case, a patient of Dr. Birdsall, presented goitre with palpitations and exophthalmos, and the comparative observations were taken upon Dr. Birdsall and himself. The resistances obtained were as follows:

Patient through the hands . .	5000 ohms.
" " the goitre . .	800 "
Patient through the posterior part of the neck	1000 "

The measurements in his own case were respectively 5500, 2400, and 2000 ohms; and in Dr. Birdsall's case, 8000, 1000, and 1000 ohms.

The third case:

Patient through hands . . .	5000 ohms.
" " goitre . . .	1000 "
" " neck, anterior post.	1500 "
Control subjects (two), hands .	11,000 and 10,000 ohms.
" " " thyroid	4,000 and 3,000 "
" " " neck .	3,000 and 3,000 "

The reduction was thus scarcely one-quarter, certainly not one-half, and not more than would be accounted for

by the maceration of the skin due to the abundant perspiration in these cases, or as in the goitre to the influx of blood. The speaker failed to see how any importance could be attached to the test as a symptom.

Dr. Dana was surprised to hear that there was any dispute in regard to the possibility of lowering the pulse by galvanism. In a case of Basedow's disease in Bellevue Hospital, a pulse of 140 would be found lowered 15 or 20 beats after the current had been applied. The sedative effect of galvanism is generally admitted, though we cannot say whether it is produced through the pneumogastric or the sympathetic nerve. Dr. Starr's theory he thought incorrect. Lesion of the nucleus of the pneumogastric should give the same symptoms as division of its trunk, and this never gives rise to the phenomena of Basedow's disease. It might perhaps be said that this disease is due to lesion of the nucleus of the pneumogastric and neighboring parts. The speaker thought that the resistance was diminished in these cases, at least slightly, perhaps 1200 ohms. In testing, he placed one electrode in the region of the seventh vertebra and the other on the sternum.

Dr. Roosevelt has had the same experience as Drs. Starr and Jacoby. He has used both strong currents and weak currents without any influence on the sympathetic nerve. He was surprised to hear digitalis recommended. He believed that digitalis is without value for heart failure except from organic disease. He had had five cases of exophthalmic goitre under observation. Two of these had improved, but both were cases of young anæmic girls. The measurement of electric resistance he thought a difficult problem, because the factors vary.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, February 27, 1888.

The Vice-President, Charles K. Mills, M.D., in the Chair.

Dr. J. Madison Taylor exhibited a

new form of percussion hammer

devised to serve as nearly as possible all ends for which a hammer is likely to be called into use by clinicians. This feature at least would, he thought, commend it. In shape it is a cone flattened on the opposite sides, with apex and base carefully bevelled or rounded, of about the thickness throughout of the human index-finger. The material is moderately soft rubber. It is held by an encircling band of metal midway between the apex and base transversely, and from it, on the edge, depends the straight handle. The handle is rigid though light, it being Dr. Taylor's opinion that this had better be under the full control of the wielder. If elastic, as recommended by some, an element of uncertainty enters in the degree of force used in the blow. The special feature of this hammer is that the shape of the striking surface is like the outer aspect of the extended hand, palm downward, which is most often used in obtaining tendon jerk. The rounded apex end is adapted to reach the biceps tendon at the bend of the arm. This last has become important in diagnosis. In fact, in the light of recent investigations, the study of the tendon jerks of knee, biceps, and Achilles tendons, of the jaw jerk as discovered by Dr. Morris Lewis, has become a valuable addition to our means of unravelling the causes of nerve maladies. The matter is even now engaging much of the attention of the foremost writers—Jendrássik, Weir Mitchell, Lewis, Lombard, and others. Especially is this true now that the field is immensely widened by the corroborative symptom of reinforcement.

This little tool will also well serve to elicit chest sounds, to percuss the abdomen, and, in fact, is useful whenever an elastic hammer is needed. The material being of soft rubber, the blow does not hurt the intercepting fingers as does the hammer usually employed to strike the tendons and muscles. It is made by Snowden, of Philadelphia.

Dr. Charles A. Oliver made

a further demonstration of wernicke's hemiopic pupillary reaction.

It was his intention to present a patient with well-marked left homonymous hemianopsia, in whom the hemiopic pupillary reaction of Seguin could be beautifully seen, but this was not possible. He gave a rough demonstration upon the blackboard of a few observations worthy of notice. The case was seen a few weeks ago in consultation with Drs. Mills and Turnbull. The fields, which were carefully taken for form, yellow, blue, red, and green, showed the distinctive and typical limitation of hemianopsia, in which the appearance of a double bow-like curve—the smaller one sweeping around and avoiding the point of macular fixation, and the second continuing irregularly both above and below to the outside in the left field and to the inside in the right field, was plainly visible; the sequence of the fields following the order of the colors just noted. Both of the remaining fields were regularly contracted, without indentations or scotomata; the series on the left side being but one-half of the size of those on the right side, although the intensity and brightness of the colors seen in and around the macular fixation region of the left side were more vivid and pronounced. Vision for form was reduced in each eye, but slightly more so in the right: this was partially accounted for by marked astigmatism with a low degree of hypermetropia, which, upon being excluded by proper lenses, showed that its vision almost equalled that of its fellow. With or without the correcting lenses, the pupil of the right eye did not respond to light stimulus so freely as the left when equal amounts of light were projected into the interior of the organs from the different portions of the existent field areas. The pupillary reactions, which were pursued in the ordinary method of concentration of narrow, yet strong beams of artificial or natural light from various directions upon the pupil, whilst the organ was feebly illuminated to a sufficient degree to observe the actions of the irides, were not only typical of the hemiopic type, but were peculiar in the fact that in nearly all of the experiments there seemed to be an absolute ratio established between the amount of pupillary reaction and the degree of color saturation seen; this being true both in monocular action and consensual; this was plainly shown by the amount of reaction in the left iris being at least one and a half millimetres greater upon exposure of its own arc, than when its fellow arc—that of the right eye—was similarly stimulated.

Another instance which beautifully illustrates the same point, was seen in a case of brain-tumor which he ex-

amined in consultation with Drs. Keen and Mitchell, in June of 1887. There were unequal pupils corresponding in direct ratio with unequal amounts of hemianopsia, in which the greater percentage of lost color manifested itself in the smaller field; there was at least one and a half to two millimetres greater response in one or both irides when the arc holding the better color-conception was stimulated: this condition has been carefully studied, and will be combined in a forthcoming report of the case.

This observation, therefore, is of value in adding another partially objective factor to the various means employed in gaining better information in reference to the now all important question of cerebral localization, as it distinctly shows which arc has the greater amount of destructive or irritative lesion, and thus becomes an additional sign of special and distinctive usefulness.

Dr. J. Lloyd presented

Specimens from a case of probable alcoholic multiple neuritis, with brain involvement.

M. L. W., white, thirty-seven years of age, a dressmaker by occupation, was brought into the hospital February 21, 1888, in a delirious state. When first seen she was unable to move her left leg, but moved the right one with some difficulty. The day following both legs were rigidly extended, and she was apparently unable to move either. She complained of severe pains in the calves upon passive motion. The muscles of the face kept twitching all the time. The arms were constantly thrown about, the hands flexed, and the thumbs turned inward. On the night of the 22d, she became very violent, raving constantly. She would catch hold of the attendants and beg them piteously to keep her from falling. She was given, during the night, ninety grains of potassium bromide and twenty grains of chloral. The next morning she was very much depressed. She had retention of urine; about one pint was obtained by catheterization in twenty-four hours. The urine was dark colored and filled with urates, but no albumen or sugar. On account of the small quantity of urine passed, one-fourth of a grain of pilocarpine was administered hypodermatically. The abdomen was much distended with flatus. After the administration of the pilocarpine she became rather weak, and digitalis and whiskey were then given. The pulse rate became better, falling from 135 to 90 per minute. Hyoscine was then administered with the intention of securing sleep: $\frac{1}{120}$th of a grain was given at 9 P.M., $\frac{1}{210}$th at midnight. At 8 P.M. of the 24th $\frac{1}{120}$th of a grain was again given. On the morning of the 24th she seemed much more rational and quiet, the hyoscine having had the desired effect, but toward noon the pulse rate again became very rapid—from 135 to 160 per minute. The lungs quickly became œdematous, and she died at 1.45 P.M. of the same day. The left pupil was perceptibly larger than the right. There was little rise in temperature, the highest being about 101.6° F. During her illness she retained very little food or medicine, vomiting it as soon as it had been administered. Her bowels were constantly moving involuntarily. The heart sounds were normal but very feeble. Her family could give no account of her at all, as they had not seen her for years; they surmised that she had been leading an immoral life for a long time. She died in about twenty-four hours after she was first seen by Dr. Lloyd.

At the post-mortem examination very few gross changes of any kind were found. There was some congestion of the pia mater, particularly along the longitudinal sinus. In addition there was marked adhesion of the dura mater.

The peripheral symptoms simulated those of multiple neuritis, and she had, in addition, a maniacal and delirious condition. She had cutaneous hyperæsthesia and muscular tenderness. She had paralysis of the extensors, which is characteristic of multiple neuritis. Dr. Lloyd's opinion was that the case was one of alcoholism and not of epidemic cerebro-spinal meningitis, some cases of which latter disease have recently occurred in this city.

Dr. Charles K. Mills made the following remarks on

The probable occurrence of multiple neuritis in epidemic cerebro-spinal meningitis.

Recently a number of cases of cerebro-spinal meningitis have appeared in Philadelphia, of which he had seen several in consultation, three quite recently, two with Dr. Cahall, of the Falls of Schuylkill, and one with Dr. Dick. They had some of the typical symptoms described by authors. The particular point to which he wished to call attention was that in two of these cases markedly, and in the third to some extent, there were symptoms which seemed to point to multiple neuritis, or, at least, to neuritis involving certain portions of the body. In one case the most decided complaint of the patient was pain and soreness in his legs. He found soreness over the nerve trunks; and also, in addition, muscular and cutaneous hyperæsthesia. He also had the appearance of the legs often seen in multiple neuritis, the equino-varus position of the foot. The knee-jerk was diminished. In another case, outside of the mental condition, the pain and tenderness in the leg were the most distinct symptom. The conditions were exactly those which are regarded as diagnostic of multiple neuritis—that is, tenderness over the nerve-trunks, and pain in the muscles with tenderness on pressure. In going over the literature of multiple neuritis lately, Dr. Mills found that this affection had been associated with or caused by nearly all the infectious diseases, but no cases were reported in connection with so-called cerebro-spinal fever. In this disease we have a true meningitis, and he thought we might also have a perineuritis, or a neuritis. In some cases the multiple neuritis might alone be present. In this way certain irregular cases might be accounted for. Stillé and others refer to a neuralgic form of cerebro-spinal meningitis. The point which he wished to make was that true diffused neuritis, either alone or in connection with other conditions, probably occurred as a result of the infection.

Dr. W. Osler had recently had an interesting case of cerebro-spinal meningitis, which proved fatal. The patient, a young girl, when admitted to the hospital was thought by the resident to be hysterical. She was nervous and twitched on attempting the slightest movement. He thought at first that it was a case of subacute rheumatism. She subsequently developed well-marked symptoms of cerebro-spinal meningitis. The case proved fatal, and the autopsy showed the characteristic lesions of the disease. There was extensive recent exudation down the whole posterior surface of the cord. In the brain it was limited to small patches on either side of the pons, but there was the most intense congestion of the cortex. It is remarkable in Dr. Mills's cases, if they be instances

of multiple neuritis, that, unlike other examples of this complication of specific fevers, the symptoms have appeared early in the course of the disease. In other affections, as typhoid fever, phthisis, and diphtheria, the neuritis appears as a late complication.

He would like to make one remark with reference to central nerve irritation producing symptoms of cerebro-spinal meningitis. There are cases of typhoid fever with marked meningeal symptoms, and he has known such cases to be diagnosed by careless observers as cerebro-spinal fever, and the autopsy had shown the specific lesion of the intestine, and only congestion of the spinal and cerebral meninges. The diagnosis of meningitis, either in the brain or the cord, may be extremely difficult. Unless the nerves at the base are involved, it may be impossible to say whether or not there is exudation. This is well illustrated in the meningitis of pneumonia, which may produce an ever-deepening coma, not to be distinguished from that which accompanies cases with intense cerebral congestion, unless pressure on one of the nerve-roots gives the clew; and this led to the diagnosis in one of the eight cases of the most intense meningitis in this disease, which were observed in the Montreal General Hospital between 1876 and 1884.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, March 14, 1888.

The Vice-President, W. W. Keen, M.D., in the Chair.

Dr. J. Madison Taylor read a paper

ON THE EARLY RECOGNITION OF EXOPHTHALMIC GOITRE (GRAVES'S DISEASE).

In which he called attention to the importance of early recognizing a disorder which often eludes detection, pointed out certain features which should enable us to do so, and offered in illustration, very briefly, the salient points in half a score of cases.

Exophthalmic goitre, or Graves's disease, is not a rare malady. At first it is merely a disorder, but frequently becomes a serious disease, and is known to cause death. More often it unfits its victim for active usefulness, or, at least, limits this and sadly disfigures him. Like certain other ailments the outcome of irregular nervous discharge, what in its incipiency is a very manageable complaint, produces in time a disastrous effect upon the tissues, and forms a practically unconquerable disease.

In reviewing a large number of cases in the search for a complete symptomatic picture, he found that the most constant early feature is sudden and marked evidence of loss of nervous equilibrium. The vasomotor nerves seem quite unstrung. Hence arise flushing, sweating, and other skin changes, diarrhœa and transient albuminuria. If at this time a careful watch be kept, we should find irregularities in the action of the pupil. The skin usually loses its healthy hue, grows sallow or dark, and becomes greasy to sight and touch. This oily look was present in most of the cases he had seen, though he had not seen it mentioned elsewhere. Begbie recounts one case of pigmentation, or bronzing, of the skin; Reynaud calls attention to vitiligo; and Edward Squire, to a discoloration in an isolated instance. The oleaginous appearance seems to him quite constant on the face and body. This grows less when salt sponging and belladonna form part of the treatment.

Gowers calls attention to muscular tremor. He had seen this rarely. In two of his cases there was a tremulousness in the voice, which he ascribed to nervousness, yet it is constant. The emotions become often so overwrought that various mental peculiarities excite apprehension. Or a wiser person may regard the case as one of pronounced hysteria; and, indeed, all through the malady hysteria remains present, more or less, leaving one not seldom in grave doubt. Frequently delusions occur, and these so closely in unison with the ordinary habits and thoughts of the individual as to render them most difficult of detection.

Dr. Hilton Fagge warns us to be on the lookout for "slight cases in which one or two of the cardinal symptoms may be absent throughout." Trousseau also insisted on this point. Von Gräfe expresses the opinion that among women it is not rare to find instances of this malady where the only symptoms are disordered action of the heart, not accompanied by valvular trouble or hypertrophy, nor the faulty action of the lid as described by him.

Heart disturbance most often leads the sufferer first to seek medical advice. The pulse is always quick and irritable, usually intermittent. The heart-beats, as a rule, bear surprising relationships to the pulse. Overaction of the heart is well known to be a frequent feature of anæmia and chlorosis. Ross regards the anæmia, which is usually present, as rather a result. Throughout the whole vascular system there is a manifest lack of *tone*. So constant is this that it may yet be found competent to explain the causation of the disorder. Certainly the graver features bear causal relation to this state. The vasomotor nerves seem all out of balance; nor can it be confined to one part, though the cervical sympathetic is most prominently involved. There are cases where limited areas not governed by the upper ganglia show derangement, as in a woman now under the care of Dr. E. T. Bruen, where one side sweats from shoulder to toe, and the opposite eye is prominent. Arterial tension varies rapidly, and unaccountably; hence the oft complained of noises in the head, amounting at times to terrific roarings. This may explain the maniacal attacks, as well as blood-spitting, thirst, and transient albuminuria.

The heart itself is rarely diseased. The overaction in time brings on hypertrophy; more commonly, dilatation. It also suffers from the general malnutrition, which is noticeable throughout the circulatory system. The small amount of structural damage which this viscus sustains is a matter for remark, however, when the profound functional disturbance is considered. Systolic bruits are commonly heard, even over the auricles and the great vessels of the neck. Dyspnœa is distressing. This, at times, even early in the history, alarms one who feels naught else to complain of.

The thyroid enlargement is liable to appear long before the eyes become prominent, but readily escapes attention. It may happen that a sense of constriction is felt when swallowing, especially in men who wear tightly fitting collars. Both lobes are, as a rule, enlarged; but if one only, it is generally the right. When recovery takes place, this badge remains to chronicle the victory.

The eye prominence is late to appear, as a rule, and it would seem to mark the height of the disorder. Before

the exophthalmos, there may generally be noted the sign asserted by von Gräfe to be pathognomic, a belated action of the lid in following the downward movement of the ball. Sometimes the lower lid is tardy in following an up glance. This obtrusion of the eyeball is the most picturesque feature, but happily it is not constant, and is often very late. It is of both eyes, mostly, but if of one only, again the right suffers. Sight is seldom affected, except where the outstanding, unprotected cornea suffers hurt or irritation; then opacities may result. If errors of accommodation exist, this correction, in his opinion, greatly aids in reducing the exophthalmos. Fundus lesions are not characteristic; though pulsation of retinal vessels may serve to confirm suspicions.

Knee-jerks are rarely abnormal; often in slight excess.

Electrical examination has been, very recently, shown by Charcot, and confirmed by Vigoroux and Norris Wolfenden, to aid greatly in foretelling the onset of this trouble, the bodily resistance being greatly lessened most peculiarly in this disease. This may prove a valuable aid in diagnosis.

Dr. Taylor then gave the notes of eight cases which had been under his observation.

The subject of treatment he hoped to discuss on another occasion. It consists mainly of rest, judicious feeding, tonics, and carefully selected sedative measures. Appropriate glasses, too, are essential; at times sharp counter-irritation, especially diuretic remedies and attention to the emunctories. Galvanism, too, has immense value in some instances, but requires judgment in selection of cases. In brief, whatever measures tend to repair the tone of the vascular system and allay nervous excitability will best bring about gratifying results.

Dr. S. D. Risley asked whether there is any indication by which the development of exophthalmos can be expected in cases in which it has not yet appeared.

Dr. J. B. Roberts believed that the great ocular deformity, which is so unpleasant to the patient, and attracts so much attention, can be remedied by a very simple operation: merely putting a stitch at the outer canthus, after freshening the edges of the lids, to diminish the optic commissure after the case has made such progress that it is reasonably certain there is to be no further diminution of the prominence of the eyeballs. The patient can be made more comfortable and less conspicuous.

Dr. Edward Jackson said that the procedure suggested by Dr. Roberts might be resorted to for other than cosmetic reasons. He recently saw a case of this disease, with very great exophthalmos, in which one eye had been lost through sloughing of the cornea due to exposure; and he afterward learned that the second eye had been lost in the same way. Such an accident might be prevented by narrowing the fissure of the lids.

Dr. A. V. Meigs knew of one person who has completely recovered from the disease, a woman who had a very severe attack many years ago, under the care of his father. The prominence of the eyes, which was very great, is now hardly noticeable, and yet no operation was ever done. He did not think much would be gained by sewing up the canthus, for while the disease is in its acute stage, it is hardly likely the operation would afford much relief, and later, if the patient recovers at all, the difficulty cures itself. He thought he knew the case Dr. Roberts had in his mind when he spoke, and Dr. de Schweinitz, who has seen the woman in question, will probably agree with him that nothing would be gained by an operation. One thing he had learned of recent years, and it is that it is not necessary in all cases to put the patient to bed. He could mention three or four cases he had successfully treated with tonics and proper regimen, without its becoming necessary to have rest in bed; the cases, to be sure, were not severe. He did not see how a positive diagnosis can be made until we have at least two of the features of the disease present, namely, the cardiac palpitation, and some thyroid enlargement; the prominence of the eyes occasionally does not manifest itself, but a diagnosis can undoubtedly be made in its absence.

Dr. G. de Schweinitz had examined the case that Dr. Meigs referred to, and he saw nothing to be gained by surgery. The eyes were at first very prominent, but they were then receding, and now the normal relation of lids to eyeballs is restored. Inasmuch as there is considerable myopia, and hence not uncommon prominence of myopic eyes to begin with, they will always be more or less conspicuous.

Dr. S. Solis Cohen agreed with Dr. Taylor that vasomotor paresis plays an important part in the development, if not in the genesis, of this disease. The only case he had seen in the male subject occurred in a young man subject to frequent attacks of flushing of the face, sometimes accompanied with high temperature, in whom the rapidity of the heart's action had led to a diagnosis of hypertrophy of the heart, not warranted by physical exploration. The eyes were not involved at the last time he saw the patient, nor was thyroid enlargement sufficient to attract attention without special examination. He had now under his care in private practice a young lady not at all hysterical, subject to similar attacks of flushing, which sometimes leave behind for a short time wheals like those of urticaria, who has also had two attacks of sudden transient blindness, after which all that could be detected in the fundus was moderate congestion; and whose cardiac action, rapid and irregular at these times, is at other times perfectly normal. No organic lesion of any kind has been detected either by him or by more competent observers. It is possible that this may be an early stage of Graves's disease. Improvement has taken place under minute doses of picrotoxin, a drug which Dr. Bartholow has prescribed in cases of exophthalmic goitre, at the hospital, with very good results. One case especially he recalled which was associated with purpura. He would like to know whether Dr. Taylor has met with this association. A very interesting case of acute exophthalmic goitre presented at the Jefferson Hospital clinic; an anæmic young girl affected from childhood with nystagmus, in whom goitre and exophthalmos were asserted to have developed within a short time after a fall from a ladder. She was unable to button her collar, which friends had opened in attending to her after the accident.

Dr. J. C. Wilson briefly narrated two cases of Graves's disease, recently seen in his private practice, in which the symptoms developed rapidly after mental shock. The patients were young women. The first, a servant, aged twenty-four, engaged to be married to a young man who was by occupation the driver of an ice cart. Within a day or two of a visit to her, he was accidentally killed, and her first knowledge of his death came through the newspapers. Cardiac overaction at once developed, and within a month thyroid enlargement, and slight exoph-

thalmos. Under rest and large doses of Fowler's solution complete recovery took place in a year. The second case was that of a lady, aged twenty, who rapidly developed the characteristic symptoms of Graves's disease after the shock and grief occasioned by the disappearance of a near and loved relative, and the discovery that he was a defaulter to a very large extent. The prominence of the eyeballs was in this case very slight; the other symptoms were characteristic. Under treatment by rest and arsenic decided improvement took place.

Dr. Taylor, in reply to Dr. Risley's query, Does any sign clearly foreshadow the exophthalmos? could only say that he knew none, nor did he see anything in the literature of the subject to aid us. It usually marks the height of the disorder, though this may be the first feature noticed, especially when it arises suddenly, as from a shock or overwrought emotion. In reply to Dr. Meigs's objection that the three classical symptoms can alone and in conjunction constitute the disease, he said that it seemed to him readily possible to recognize in the peculiar vasomotor disturbances, the extreme and unaccountable nervous excitability, the appearance of the skin, etc., the early stages of this disorder. In fact, the object of his paper was to call attention to this very possibility, so that a quietus might be placed upon it at the very beginning if possible.

In the use of galvanism we have a valuable aid in diagnosis, as Charcot and Vigoroux have pointed out, but in the treatment it has not been of greater use than some other measures, though it should always be used in the severer cases.

In his endeavor to be brief he did not intend to say much on plans of treatment, leaving that for consideration elsewhere, but rather to speak of early recognition and *early* treatment, which should consist of rest, carefully regulated living, food, and tonics.

Dr. Charles B. Nancrede read a paper

ON THE IMPORTANCE OF PRIMARY SUTURE OF DIVIDED NERVES, WITH AN ILLUSTRATIVE CASE OF SUCCESSFUL SUTURE OF THE MEDIAN AND ULNAR NERVES.

The aim of this brief note is merely to call the attention of general practitioners in whose hands many of these cases will fall, to the *duty* of suturing divided nerves as a routine practice, just as we would tie arteries, and to describe a simple, effective method of carrying out the indication.

A critical examination of the histories of nearly all excisions of nerves where reproduction has occurred, will show that they were removed either from a bony canal or from an intermuscular space in which they normally lay, *with the minimum* of injury to the surrounding tissues. Moreover, even when their ends have been turned back and sutured in position, or even buried in the surrounding tissues, they have been so secured in the same intermuscular space which the nerve normally traverses. In other words, the bony canals and the intermuscular spaces likewise act as moulds which direct the course of the reparative material from the proximal to the distal end of the severed nerve. In extensive wounds, however, this condition does not obtain. Intermuscular spaces are dislocated, large masses of scar tissue are formed, so that instead of the new nerve-tissue being *compelled* to grow in only one, and that the right direction, it has too often an insuperable barrier interposed, and union fails.

In the case which he exhibited,[1] the proximal ends of the ulnar and median nerves were directed at right angles to their intermuscular space, and would have been infallibly fixed between the ends of the torn muscles in a dense mass of scar tissue, resulting in permanent loss of power of the member. In the seventh month after suture—*i. e.*, the usual period required for the degeneration and regeneration of a nerve—first sensation, and then motion returned, until now, although the functions of the member are not perfect, the boy can earn his living, and do nearly all that can be effected by a normal hand and forearm.

Finally, how should the sutures be passed, and what should their material be? Fine aseptic catgut passed by means of an ordinary sewing needle is to be preferred, but fine aseptic silk can be used. Should the nerve be *very* much lacerated and frayed out, it may, perhaps, be sometimes proper to cut off a portion to gain a clean surface, but this is rarely desirable. The needle should be passed from below upward through the promixal end of the nerve at one border, across, and then passed from above downward near the opposite border, entering the needle from an eighth to a quarter of an inch from the cut end, according to the size of the nerve. The needle must now be passed from below upward through the distal portion of the nerve at the border corresponding to the last passage of the needle through the proximal end, across, and made to pierce the nerve from above downward, when the suture will be found to correspond to the free end of the thread in the proximal piece of nerve.

Gentle traction, with an appropriate position of the member will, by the tying of one knot, accurately approximate the nerve ends; in a word, by this simple method all the advantages of the two separate sutures commonly recommended are obtained with a far greater degree of security. The strictest asepsis should be secured, which is easy enough provided the wounded part, the surgeon's hands and his instruments be strictly cleansed, and the wound be freely irrigated with the bichloride and tartaric acid solution. If the surgeon gets an uncontaminated wound, it is his own fault if he has suppuration, and even with the ordinary run of accidental wounds, if he will thoroughly scrub his hands with a nail brush and hot water, and likewise treat the parts surrounding the wound, pour boiling water over his instruments, without any further antisepsis, in most cases healing without suppuration can be secured, while the omission of these details will mar results with gallons of mercuric solution flowing over the wound.

Dr. H. R. Wharton asked whether we should attempt secondary suture of the nerves when this has been omitted in the first place? He is very decidedly of the opinion that this procedure should be adopted, for a number of cases have been reported of this character, in which the results have been, at least, good enough to make one feel that secondary suture should be attempted when there is

[1] In this patient the brachial artery was also torn through, leaving only a bridge of muscle and skin through which collateral circulation could be carried on. The deficient blood supply possibly explains the failure of the recovery of power in the interossei muscles, although other of the intrinsic muscles of the hand which are supplied by the ulnar nerve contract well.

any probability of restoration of the use of the injured part.

Dr. John B. Roberts said the only case of nerve-suture he remembered at present is one in his wards, in which the work had very properly been done by the resident immediately on the admission of the patient. It was a rather extensive incised wound of the leg, involving the musculo-cutaneous and anterior tibial nerves. The muscles and nerves were sutured and dressed antiseptically, and the results were good; though he did not follow the case after discharge so as to make an accurate report as to sensation. Dr. Nancrede has incidentally touched upon a point of great importance, that of tenosuture. It had been his misfortune to meet with quite a number of cases in which this had been neglected by the attendant called at the time of the accident. One of these recently seen was that of a man wounded in the forearm just above the wrist, and in the ring finger. There was loss of flexion of the finger, but it was hard to tell which of the wounds to reopen in order to come upon and suture the divided tendon. The family physician believed it to be the wrist; but after cutting down, the speaker found the tendon here flaccid and intact. He then opened the finger-wound, and here found the tendon retracted into the sheath. He sutured, but did not get a good result, probably from the extent of dissection necessary to get at the tendon in the sheath, and the great mass of cicatricial tissue. However, he never hesitated to reopen healed or partially healed wounds to suture tendons when this very important measure had been neglected.

He was glad to hear Dr. Nancrede say that with cleanliness of person and of instruments asepsis can be secured without chemical solutions. This is in marked contrast to a surgeon of prominence, who thinks that the employment of solutions renders care as to cleanliness unnecessary.

Dr. J. William White did not know whether Dr. Nancrede spoke of the resection of the crushed and bruised ends of the nerves. The general principles of nerve-suture are admitted by all surgeons, but the question of resecting lacerated or contused ends before suturing, or of allowing them to remain, is one that should be carefully considered in each case. On the one hand, by resection of any considerable portion we increase longitudinal tension, and make greater strain on the sutures; on the other, we run the risk of including in the stitches tissue too much damaged to recover itself. There is some difference of opinion as to the particular suture to be employed. He should think that the one proposed by Dr. Nancrede would be open to objection, if it interposes a foreign substance, the catgut thread, between the ends of the nerve; this, if not absorbed, as is sometimes the case even with the best catgut, is liable to be a constant source of irritation, and to prevent union. He preferred and employed a suture passing quite through the nerve above and below the point of union. Evidence, either clinical, or pathological, or experimental, as to the relative advantages of different sutures is desirable, but he did not know of any, and did not understand Dr. Nancrede to say there was such evidence.

Dr. W. W. Keen cited two cases from his own experience in connection with the subject:

1. A case of primary nerve suture in a boy two years of age, with perfect recovery of motion and sensation. The case occurred ten years ago. The child, carrying a glass bottle, fell, and a fragment of glass divided the ulnar nerve and artery about an inch and a half above the wrist. The mother made compression with her thumb until he arrived, very soon after the accident. After ligaturing the artery, he examined the nerve and found that it had been divided. He had only his pocket-case containing coarse white silk and an ordinary needle. Not wishing to leave the coarse silk in the wound, particularly not in the nerve tissues, he debated as to the method of suture, and devised one which proved eminently satisfactory. Drawing the ends together closely with forceps, he passed a surgical pin obliquely through the two divisions, threw a loop of silk around the point of the pin (as in Simpson's method of acupressure), drew out the thread, passed it around the head of the pin, where it was secured. At the end of forty-eight hours the pin was removed. The thread was thus loosened and removed. Perfect union of the wound took place in a few days. There was no wasting of muscles, and motion was present after twenty-four hours. While the age of the child prevented exact observation as to the time at which sensation returned, at the end of forty-eight hours there was an exclamation of pain on pricking the little finger with a pin. He saw the father of the boy about a year ago, who told him that his son had perfect use of hand and fingers.

2. Extensive tendo-suture, with quick union. A recent case shows the value of even a brief suture of tendons. A man twenty-five years of age was admitted into St. Mary's Hospital with complete severance of all the tendons of the forearm and of the sheath above the wrist. The resident sewed each tendon carefully. He had only Kocher catgut, which does not remain more than three to five days, and then closed the external wound and placed the hand in flexion on a splint. The man left without permission after a few days, and it seems removed the splint and tore out the sutures in the skin. He returned later with a gaping wound in the forearm, but on testing the fingers separately each finger and each joint was found to have perfect motion, showing that even this temporary apposition of the divided tendons had a perfect result. He should prefer for the purpose, however, either very fine silk, or, better, the ordinary chromicized catgut.

Dr. Nancrede said that Dr. White had misunderstood him. There is nothing between the divided ends of the nerve. The nerve is securely and accurately coaptated by the suture. He had no distinct recollection of resecting the injured ends in this case, in fact, he was nearly certain that he did not. In some cases it *might* be desirable, but he is dubious about it. He made it a rule to suture nerves and tendons in every case, and generally obtained fair results.

CORRESPONDENCE.

THE CUTANEOUS EXCRESCENCES FOLLOWING UNSUCCESSFUL VACCINATIONS.

To the Editor of The Medical News,

Sir: Your correspondent, A. J. Comstock, M.D., in The Medical News of March 10, 1888, gives his opinion of the cause of the excrescence which sometimes follows an unsuccessful vaccination. As my experience

differs from his, it may be well to record it, trusting that the true cause may, through the experiences of many, be ultimately determined.

In the early years of my practice, I collected the virus from the eighth-day vesicles of healthy infants, on quills which I had scraped just before applying them to the punctured vesicle, in order to secure their cleanliness. I was particular not to take the lymph when I had pricked the tissues and drawn blood, but applied the quill directly to the drops of lymph as they escaped from the punctures in the vesicle, and seldom touched it to the surrounding skin. If, on the eighth day, the pock had assumed a pustular character, and the surrounding skin began to inflame, I did not collect the matter, as it was not considered safe to use it.

I never saw the excrescences until I commenced vaccination with bovine virus. Since then I have probably used as many ivory points as quills. I have never scraped a quill charged with vaccine matter, and put it on the scarification. I think the excrescence has appeared as often after the use of the ivory point as after the quill, which would disprove the hypothesis of quill-grafting.

My explanation to those who have witnessed the appearance, and have been alarmed by it, has been that the skin of the calf was ingrafted with the vaccination. I give it as an opinion, undemonstrated. The fungous character may be due to the number of cells thus ingrafted, or to the stimulus of scarification to the normal skin. If viable cells are mixed with active vaccine, their viability may be destroyed in all successful vaccinations: hence, their appearance only when the vaccination is ineffectual.

I have had manifold more failures with bovine virus than with the humanized vaccine when I cultivated it for my own use. I hope the culturists of bovine virus will inform the medical profession whether or not they observe as much caution in collecting the matter, avoiding the blood and irritated tissues of the heifer, as I was taught to do, more than thirty years ago, when collecting from the healthy infant; and further, whether they collect the matter when it appears purulent, or after the inflammation has surrounded the pock.

Respectfully, N. W. Leighton, M.D.

148 Taylor St., Brooklyn, N. Y.,
March 19, 1888.

OBITUARY.

WILLIAM BENJAMIN GOLDSMITH, M.D.

William Benjamin Goldsmith, M.D., Superintendent of the Butler Hospital for the Insane, at Providence, R. I., died at that place, March 21st, in the thirty-fifth year of his age. The fatal disease was acute pneumonia of seven days duration.

Dr. Goldsmith was born at Bellona, Yates Co., N. Y. He graduated in the Arts from Amherst College, Massachusetts, in 1874. The next year he spent at the Willard Asylum for the Insane, as a medical student, under the special instruction of Dr. John B. Chapin. He then took a course in general medicine at the College of Physicians and Surgeons, N. Y., for two years, graduating in 1877, and ranking among the first ten in his class. After a brief service at the Presbyterian Hospital in N. Y., he became second assistant at the Bloomingdale Insane Asylum, where he remained two and a half years. The next year he spent abroad, pursuing the study of his specialty at the West Riding and Royal Edinburgh Asylums. In October, 1880, he returned to Bloomingdale as First Assistant, and in March, 1881, when twenty-eight years old, was appointed Superintendent of the Insane Asylum at Danvers, Mass. At the end of three years he resigned intending to go abroad. His resignation, however, was not accepted, but a year's absence was granted him instead, which was spent in Germany. After one year more at Danvers he was, in February, 1886, called to the Butler Hospital, Providence, R. I., to succeed, as Superintendent, Dr. John W. Sawyer, deceased.

Dr. Goldsmith came to the Superintendency of the Butler Asylum in the enjoyment of a high reputation, and upon the earnest recommendation of Dr. Nichols, of Bloomingdale Asylum, and the work he subsequently performed only served to indicate more fully the kind of man he was. Without losing complete harmony with the methods of Dr. Sawyer, he developed a system of treatment and government whose excellence will surely be perpetuated. A friend who knew him intimately has thus written of him, "He was born to command, and what it took others long years to acquire he seemed to grasp without effort, and yet he was always deliberate, careful, and methodical in all which was brought to his attention, but once having acquired it he never lost its possession, so that he was ever gaining and broadening without any retrogression. He entered upon his duties at Danvers with the firm and quiet dignity of a man of years of experience, and so conducted the affairs of that great institution as to command the respect and love of all who were in any way connected with it. His yea was yea, and his nay was nay; and yet there was no sense of fear or dread in his rule. He was a kingly man whose rule, though firm, was the rule of duty and love."

His creed, though short, was all comprehensive, viz., "Love to God and love to his fellow-man."

Dr. Goldsmith was a Fellow of the Rhode Island Medical Society. He was unmarried. A widowed mother and a sister survive him. In his death the medical profession loses one of its most earnest, most useful, and most promising followers.

NEWS ITEMS.

Surgeon-General Gunnell.—A Washington special to the *New York Times* states that the impression prevails among naval officers that Secretary Whitney has been unjust to Medical Director F. M. Gunnell in not reappointing him Surgeon-General of the Navy, and thereby enabling him to retire with the relative rank of Commodore. The Secretary hesitated for some time over this appointment, and it was only after he was convinced that no injustice would be done Dr. Gunnell that he concluded to appoint Medical Director Browne. There is a law not generally known, it seems, that gives staff officers retiring at the age of sixty-two, after forty years of faithful service, the relative rank of Commodore. Dr. Gunnell will have been over forty years in the service at the date of his retirement, and therefore will retire with the rank of Commodore. This provision is contained in Section 1481 of the Revised Statutes, and it was reading that

section which determined the Secretary to supersede Dr. Gunnell.

Philadelphia Polyclinic Course of Lectures.—The remaining evening lectures in the Polyclinic course will be given on the following dates at the Polyclinic Building, Broad and Lombard Streets:

April 3, Prof. Charles H. Burnett: Excision of the Membrana Tympani in Chronic Ear Diseases.

April 10, Prof. Arthur Van Harlingen: The Management of Eczema in Old People.

April 20, Prof. J. Henry C. Simes: The Treatment of the Primary Lesions in Syphilis.

April 24, Prof. Edward Jackson: The Character and Significance of the Retinal Lesions associated with Bright's Disease.

May 1, Prof. Alexander W. Mac Coy: Observations on the Pharyngeal Tonsil.

May 11, Prof. H. Augustus Wilson: Treatment of Lateral Spinal Curvature.

May 22, Prof. Solomon S. Cohen: Respiratory Therapeutics.

All lectures begin at 8 P.M.

A Warning.—The *Lancet*, in a recent issue, offers the following timely warning against the indiscriminate use of antipyrin: The public attention given to the latest remedy for sea-sickness and many other affections to which flesh is heir has its percentage of evil as well as good. Every medicament is not an unmixed advantage, and to suppose that antipyrin may be taken recklessly any more than chloral is to adopt a position of a dangerous kind. Antipyrin has on several occasions been administered with unexpected results. It is a drug which has undoubtedly powerful effects on the nervous system, especially as tending to produce a lowering action. We must strongly protest against its indiscriminate employment without the supervision of a medical man.

A Practical Test of the Cremation of Garbage.—The *Sanitary News* of March 10, 1888, describes a recent test of the garbage crematory at Chicago, as follows:

As yet the men who have charge of the crematory are inexperienced, the masonry is in a moist, if not a wet condition, and on the day of the test the garbage arrived late, yet, from 9 o'clock in the morning until noon, about sixty-seven double wagon loads of garbage had been incinerated. Speaking of the garbage, it was really more of a curiosity than the works, inasmuch as everything conceivable, fire-proof or inflammable, combustible or non-combustible, from a broken tooth-pick to a barrel of solid ice, was there to be burnt. During one slow, but sweeping and satisfactory glance on the refuse of a great and mighty city, we missed nothing, positively nothing—that is, over, on, or under the earth.

The furnaces and buildings surrounding them, in fact, the crematory, complete, cost but $7000, and when one takes into consideration the great amount of teaming the work will dispense with, not to speak of the incalculable value, from a sanitary point of view, it will soon pay for itself, if it proves the success it is expected to. Garbage will be hauled to this crematory from a radius of one and one-half miles, and after it has proved successful, others will be built, probably five in all. Thirty-six wagons are now being made for the special purpose of hauling the garbage. The capacity of the furnaces has not, as yet, been tested, but the inventor claims that they will burn anything put into them, and that a great deal can be put into them. While at the crematory we were treated to a cat and dog burning exhibition, which was very fine—that is, the ashes, as one of the party said. The furnaces have an excellent draught, and the little smoke that arose from the tall chimney was shot straight into the air, for several feet, before being carried away by the rather stiff breeze, high over the buildings in the vicinity. There was no odor perceptible, except such as arose from the garbage before it went into the furnace, which smell can be enjoyed at home, in the alley, in the back yard, or even on the sidewalk.

Ancient Anatomical Figures.—Le Blant, of Rome, describes figures discovered in Rome recently, without head or limbs, but with an open thorax, showing the location and relation of the viscera. The latest discovery of this sort was the finding near the temple of Æsculapius upon an island in the Tiber, more of these figures excellently modelled and colored. The God is said to have performed miraculous cures at the spot where these were found.—*Gazette des Hopitaux.*

The Cause of Dental Caries.—The *Popular Science Monthly* for April, 1888, writes that to the question, Why do teeth decay so rapidly? Dr. Julius Pohlman answers, because we do not use them enough—showing that as a rule, "those people who are least acquainted with the so-called hygiene of the teeth are the happy possessors of the soundest dentition"—like the negroes who chew sugar-cane; the German peasants, who are famous for their brilliant "Schwartz-brot-Zähne," or "rye-meal-bread teeth," polished but not worn out by daily mastication of dry, hard, black loaves, and the few old people left among us who persist in eating bread-crusts. Our weak and effeminate teeth are not used to hard work, and like other organs that are not exercised, tend to atrophy. "The foundation for bad teeth," says this author, "is generally laid in early childhood; for numberless mothers and nurses very carefully soften the food or remove the crust from the bread before giving it to the little folks, because it may otherwise 'hurt their teeth,' and so the child grows up with a set of unused organs in its mouth; and when we have finally succeeded by the creation of artificial conditions in producing weak organs, then we wonder why the poor child has such bad teeth, and why it is so often suffering with toothache, and why the dentist's bill is so high. Teeth are organs specialized to perform the work of mastication; they are subject to the same laws that govern other organs, and their strength is determined by their use. Understanding this, we are obliged to admit that, if we ever become a toothless race, it will be our own fault."

Nitrite of Amyl in Warfare.—Weston, an electrician, concludes from his studies of projectiles, that the common form of offensive and defensive weapon at present is something that will throw a solid or an explosive metal projectile—a solid shot, a shell, or a torpedo. Explosive bullets for small arms are tabooed under the laws of war, because they do unnecessary damage, that is, they kill after striking, when the wounds they first cause would

be sufficient. It follows that if one could overpower his enemy without either killing or wounding him, that plan would be preferable to any now existing. That is what he believes can be done. It is well known that the nitrite of amyl possesses the power of causing insensibility very quickly in a human being breathing its fumes. The effect is equivalent, temporarily, to a paralytic stroke. Now, nitrite of amyl is very cheap and plentiful. He proposes to fire shells filled with this chemical instead of gunpowder. It will not be necessary to penetrate a ship. A few gallons of this nitrite dashed on the deck of a war ship would soon render her crew helpless. The most powerful ironclads would be even more vulnerable than the light cruisers, for they would be sucking down great draughts of air through their artificial ventilators, and the odor would thus rapidly permeate the whole ship. The whole crew being rendered helpless for an hour or two, the ship could, of course, be towed into a safe spot, while the captors ventilated her and removed the insensible men.—*American Analyst*, Feb. 15, 1888.

Poisoning by Castor-oil Bean.—EDSON reports in the *Brooklyn Medical Journal* for February, 1888, the following instance of poisoning from the castor bean:

In October, 1887, fifteen children under six years of age, and one female nurse twenty years old, all inmates of the Home for Destitute Children in this city, indulged in a repast of raw beans taken from a castor-oil plant growing in the yard of the institution. The effect upon them all was to cause severe vomiting and prostration. The vomiting was persistent and seemed but little amenable to treatment. Various measures were tried to afford relief, but none was satisfactory. The nausea and retching recurred at short intervals in many of the cases, for at least forty-eight hours after the seeds were eaten, varying in duration and severity with the number eaten, the amount of food contained in the stomach at the time, and the susceptibility of the individual children.

The number of beans eaten could not be well ascertained, but it is believed that no child ate more than three or four.

The nurse, who even yet maintains that she ate but a single one, was so affected that for over sixty hours she could not assume the upright position without the recurrence of the nausea and vomiting. She was so prostrated that she was under treatment in the hospital of the institution for ten days before she was able to resume her work. Extreme prostration was a feature of all these cases.

The remarkable feature in *all* these cases was, that *in not a single instance was there any catharsis.*

This is not in accordance with what we have been led to expect.

Congo Paper.—The following description of this recently introduced test for acids is of interest, in view of its application to the diagnosis of gastric diseases.

The *American Druggist* for March, 1888, gives the following formula:

Congo-red	1 part.
Alcohol	7500 parts.
Distilled water	2500 parts.

Dissolve the Congo-red in the mixed liquids, and impregnate paper with the solution.

Limit of sensitiveness: 1 : 3000 toward sulphuric acid; 1 : 2500 toward hydrochloric acid.

According to this, Congo-red appears to be an exception to other indicators, as it is less sensitive to hydrochloric than sulphuric acid.

Congo-red was proposed about two years ago as a good indicator for acids and alkalies. At first it was proposed as an indicator for free acids in the presence of alum. It is turned *blue* by acids, and *red* by alkalies, just the reverse of litmus. Though its sensitiveness is not very great, it may yet be used to advantage in some cases, where the result obtained with litmus paper remains doubtful, owing to the specific color of the liquid to be tested.

Congo-red is a name given by the "Aktiengesellschaft für Anilinfabrikation," in Berlin, to a product discovered by Paul Boettger, and patented by him on February 27, 1884. It is prepared from tetraazodiphenylchloride and naphthionic acid. It has the remarkable property of dyeing cotton without requiring a mordant, and has become the starting-point of a large number of new colors of similar properties.

Opium Poisoning in England.—The *Popular Science Monthly* writes that it is said that forty per cent. of all the deaths from poison in Great Britain are due to opium; and this rate of mortality, according to Dr. Wynter Blythe, "arises in a great measure from the pernicious practice, both of hard-working English mothers and the baby-farmer, of giving infants 'soothing-syrups,' 'infants' friends,' and the like, to allay restlessness and keep them asleep during the greater part of their existence." It has been calculated that one preparation alone is the undoubted cause of death of 150,000 children every year.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM MARCH 20 TO MARCH 26, 1888.

SPENCER, WILLIAM C., *Major and Surgeon.*—Died, March 22, 1888, at Fort Trumbull, Connecticut.

FORWOOD, W. H., *Major and Surgeon.*—Granted one month's leave—*S. O. 20, Department of Dakota*, March 10, 1888.

BROWN, H. E., *Major and Surgeon.*—Assigned to temporary duty at Fort Barrancas, Florida, during the absence on leave of Assistant Surgeon M. C. Wyeth. On the return to duty of Captain Wyeth, Major Brown will rejoin his proper station.—*S. O. 65, A. G. O.*, March 20, 1888.

KIMBALL, J. P., *Major and Surgeon.*—Granted leave of absence for two months, to take effect about April 10, 1888.—*S. O. 68, A. G. O.*, March 23, 1888.

WORTHINGTON, J. C., *Captain and Assistant Surgeon.*—Granted leave of absence for four months, to take effect May 15th, or as soon thereafter as his services can be spared.—*S. O. 65, A. G. O.*, March 20, 1888.

WYETH, M. C., *Captain and Assistant Surgeon.*—Granted leave of absence for two months, to take effect about April 1st.—*S. O. 65, A. G. O.*, March 16, 1888.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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ORIGINAL LECTURES.

THE CARTWRIGHT LECTURES. ON THE GENERAL PATHOLOGY OF FEVER.

Delivered before the Association of the Alumni of the College of Physicians and Surgeons, New York, March 29, 1888.

BY WILLIAM H. WELCH, M.D.,

PROFESSOR OF PATHOLOGY, JOHNS HOPKINS UNIVERSITY, BALTIMORE.

LECTURE I.

THE NATURE OF FEVER.

THERE is no subject in medicine of more general and varied interest than fever. The practitioner in every department of medicine, the pathologist and the physiologist are equally interested in the investigation of the nature and effects of fever. Even the physicist and the chemist, who are not directly concerned with medical science, have lent their aid to the study of animal heat and its disorders. The history of opinion regarding fever is in great part the history of medicine itself, for no feature of the great systems of medicine from Hippocrates and Galen to the present century so characterizes these systems as the views held concerning the nature of fever. In consequence of the importance of the subject and of the number and ability of those engaged in its investigation, it might be supposed that no chapter in medical science would be better understood than that pertaining to fever. That such is not the case is due to the fact which is becoming more and more evident that the reaction of the animal system which we call fever is dependent upon the most fundamental and essential properties of protoplasm and of nerve energy. In proportion as our knowledge of these properties increases and becomes more accurate, we gain a clearer insight into the complicated processes involved in the production of fever.

I should hardly have selected for this course of lectures a subject where so many problems remain unsolved and which must necessarily be presented in so fragmentary a form, were it not that in all ages the opinions held concerning the nature of fever have controlled measures employed in its treatment. In proof of this, one need not go back to the time when fever was regarded as an almost conscious struggle of an anima with a noxious principle, in which struggle the physician was to interfere as little as possible, or to the time when fever was supposed to result from morbid humors which the physician should aim to eliminate by the production of a critical discharge, or to the period when the treatment hinged upon the belief either in the sthenic or the asthenic nature of fever. In our own time the treatment of fever is intimately connected with the answers variously given to such questions as whether fever aids in the elimination or destruction of infectious agents concerned in its production; whether increased waste of tissue is a constant condition and a source of danger in fever; what part is played by infection and what part by elevation of temperature in causing the grave symptoms of fever; what in addition to lowering of temperature are the effects of so-called antipyretic measures of treatment?

I need hardly say that the subject of these lectures relates to fever as a condition common to all febrile diseases. Some writers understand by the term fever used in this sense merely abnormal elevation of temperature, others elevation of temperature and the symptoms directly caused by this, and still others a complex of symptoms of which increased temperature is the most prominent but not necessarily the cause of the others. In considering the general pathology of fever it is convenient to adopt the last meaning, although it would doubtless be less confusing if the word fever were applied only to abnormal elevation of temperature.

Increased temperature being the dominant and essential symptom of fever, all discussions as to the nature of fever centre around the question, How is the febrile rise of temperature produced? It is to the consideration of this question that I first invite your attention. As there are other aspects of fever which I wish to discuss, it will be necessary to present the matter belonging to this division of the subject in as succinct a form as is compatible with clearness. Twelve years ago Burdon-Sanderson[1] brought together in an admirable critical review the results of investigations upon this subject up to that period. Since that time important additions have been made to our knowledge of the mode of production of fever.

In the wonderful preservation of a nearly constant temperature which characterizes in health the warm-blooded animals three factors are concerned, viz., the production of heat within the body, the loss of heat from the body, and the regulating mechanism by which the varying heat production and heat loss are so balanced that the internal temperature remains practically constant. It is theoretically possible that the rise of temperature in fever may be due to the disturbance of any one or more of these factors. It becomes necessary, therefore, to consider the behavior of heat production, of heat loss, and of the regulating mechanism in fever.

We will begin with the consideration of the production of heat in fever. The amount of heat produced by the body is estimated by two methods, one known as direct calorimetry, the other as indirect calorimetry. In the method of direct calorimetry the animal is placed in a closed ventilated box surrounded on all sides by a compartment containing water or air, and the amount of heat discharged from the body is determined by the quantity of heat imparted to the surrounding water or air. If the temperature of the animal remain unchanged during the period of observation, the heat production is equal to the heat loss; if the temperature rise or fall, the amount of heat corresponding to this change

[1] Burdon-Sanderson: The Practitioner, 1876.

of temperature—an amount determined by multiplying the weight of the animal by its specific heat and by the number of degrees of altered temperature—is added to or subtracted from the quantity of heat imparted to the calorimeter. Time will not permit me to enter into experimental details in this connection; it must suffice to say that the method of direct calorimetry necessitates the introduction of a number of corrections which cannot be determined with absolute accuracy, so that the results obtained are of relative rather than of absolute value.

Hitherto the estimation of heat production in fever by determining the entire amount of heat liberated from the body has been made only upon animals in which fever has been artificially produced. The most elaborate researches of this nature are those of Senator[1] and of Wood.[2] The experiments of Wood are of the greater value because he extended his observations over longer periods of time.

In four of the seven calorimetrical experiments of Wood on different fevered dogs comparison can be made of the amount of heat produced hourly in fever with that produced by the same animal when fed and when in a state of hunger. During the period of fever the animal was also in a condition of hunger. I have computed from Wood's tables that the average hourly heat production during seven days described as first and second fever days, is a little over 23 per cent. greater than that of the healthy animal during a state of hunger, the minimum excess being 1 per cent. and the maximum 55.5 per cent.[3] If a comparison be made of different periods during the existence of fever there are found to be even greater fluctuations in the amount of heat production than these figures would indicate, this amount being sometimes more than double that in hunger and sometimes considerably less than the average production in hunger. Moreover, these experiments show no definite relation between the height of the temperature and the amount of heat produced, nor is it possible to deduce from them any relation between heat production and the different stages of fever, such as the more recent calorimetrical experiments of Wood, Reichert, and Hare[4] appear to show and which will be described later. An important outcome of these as well as of all similar calorimetrical experiments is that, although the heat production of an animal in fever is greater than that under like conditions of nourishment, it is, as a rule, less than that of the same animal upon a full diet.

There are many reasons which make it important to control the experimental results obtained from animals in fever by corresponding observations of human beings. The agents used in producing experimental fever have been generally putrid fluids or pus, the injection of which causes sometimes diminution instead of elevation of temperature. When fever is thus produced, it is usually of short duration and of only moderate intensity, the rise of temperature being rarely more than four degrees, and sometimes not more than one degree Fahrenheit. Moreover, a large part of the important role played by the skin in the regulation of the bodily temperature in man is assumed by the lungs in these animals.

Complete calorimetrical observations of human beings in fever encounter difficulties which have not yet been overcome. The imperfect or incomplete methods employed by Liebermeister[1] and by Leyden[2] in determining the heat production of human beings in fever justify the inference that this production is increased, and, apparently, as a rule, to a greater extent than in animals, but they do not warrant positive conclusions as to the quantity of heat produced.

We turn now to the results regarding febrile production of heat obtained by what has sometimes been called indirect calorimetry. Inasmuch as the heat energy of the body is the result of chemical changes of its proteids, fats, and carbohydrates, it is evident that if we know the kind and the amount and the heat value of the substances consumed in a given time within the body, we can compute their heat production.[3] These chemical changes, so far as their final products are concerned, are processes of oxidation. The heat values of the substances consumed in the body were determined first by Frankland and more recently with accuracy by von Rechenberg, Danilewsky, and Rubner. The investigations of Pettenkofer and Voit have shown that in hunger almost exclusively fats and proteids are oxidized, and that in this condition by determining the amount of oxygen absorbed and of nitrogen and of carbon excreted, we can estimate the quantity of fat and of proteid substances oxidized during the period of observation.

Physicians of past centuries regarded increased consumption of the material of the body in fever as so evident that it needed no especial demonstration, and after Lavoisier made apparent the sources of animal heat, it was accepted almost unquestioningly until the last quarter of a century that fever is essentially a process of increased combustion or oxidation. The immense historical importance of the promulgation in 1863 of Traube's theory, which denied the dependence of fever upon increased production of heat, is that this theory has led to a careful inquiry into the grounds of beliefs hitherto generally accepted, and to the demonstration of the unsatisfactory nature of the evidence hitherto thought to be conclusive.

The striking loss of weight of most fever patients is, as is well known, a fact of great clinical importance. Weber and Finkler have demonstrated that animals in fever lose weight more rapidly than healthy animals in hunger, and although observations on human beings with reference to this point are not concordant in their results, there can be little doubt that the tendency of fever is to cause a greater loss of weight than can be explained simply by insufficient nutriment. This tendency, however, may be masked by the retention of water within the body as the investigations of Leyden and others have

[1] Senator: Untersuchungen über d. Fieberhaften Process, Berlin, 1873.

[2] Wood: Fever, A Study in Morbid and Normal Physiology, Philadelphia, 1880.

[3] In making this computation I have corrected some numerical errors in Wood's tables; these errors are not serious and do not affect his conclusions.

[4] Wood, Reichert, and Hare: Therapeutic Gazette, 1886.

[1] Liebermeister: Handb. d. Path. u. Therap. d. Fiebers. Leipzig, 1875.

[2] Leyden: Deutsches Arch. f. klin. Med., Bd. 5.

[3] The energy resulting from these chemical changes appears partly in the form of heat and partly in mechanical work. As practically all of the internal mechanical work is transformed within the body into heat energy, it is only the external mechanical work which is to be considered in estimating the actual heat production. The influence of this factor in fever will be spoken of later.

shown. While, therefore, the studies of the loss of weight in fever leave no doubt that there is increased destruction of tissue in this condition, we cannot consider this loss as an accurate measure of the increased destruction, nor, without further knowledge, as an indication of increased oxidation, still less as proof of excessive production of heat.

It was for a long time believed that the excessive excretion of urea in fever afforded satisfactory evidence of increased oxidation and of greater production of heat. We now know, especially from the researches of A. Fränkel,[1] that this is so far from being true that we could explain the excessive elimination of urea better upon the assumption of diminished than of increased oxidation of tissue. In certain pathological conditions, notably phosphorus poisoning, the amount of urea excreted may be increased more than threefold, nothwithstanding, or, as Fränkel believes, in consequence of diminished absorption of oxygen and elimination of carbonic acid. It can, moreover, be computed that even without any diminution of the respiratory gases the discharge of urea may be increased without greater production of heat. While, therefore, the enormous increase in the discharge of urea in fever sheds valuable light upon a most obscure subject, the nature of febrile metabolism, it does not, regarded by itself, afford us any information as to the production of heat.

Failing to find satisfactory proof of increased oxidation in the loss of weight of the body, or the excessive excretion of urea in fever, attention was then directed to the elimination of carbonic acid, an excretory product which bears a much closer relation to the production of heat than does urea. Immense importance has been justly attached to the determination of the amount of carbonic acid excreted by an individual in fever. No point in the whole battle-ground of fever pathology has been more hotly contested than whether increased production of carbonic acid is an essential part of the febrile process. The first investigators of this question, Leyden, Liebermeister, Senator, contented themselves with the determination of the amount of carbonic acid eliminated by an individual in fever and in apyrexia. There are several considerations which greatly diminish the value to be attached to the mere estimation of carbonic acid excreted without simultaneous determination of the amount of oxygen absorbed. As has been urged by Senator, and with especial clearness by Pflüger, increased discharge of carbonic acid does not necessarily imply increased production of the same. The discharge of carbonic acid varies, independently of its production, with the rhythm and depth of respiration, and with the temperature and the alkalinity of the blood, all factors which are altered in fever in such a manner as to favor increased liberation of carbonic acid. It is true that the influence of these factors would cause increased discharge of carbonic acid out of proportion to its production only for a limited period, and that the prolonged increase in the amount of carbonic acid discharged in fever, which has been found by several observers, can hardly be interpreted otherwise than in favor of increased production. There is another point which detracts still further from the value of exclusive determinations of the quantity of carbonic acid discharged, and this is that it makes a great difference, so far as the production of heat is concerned, whether the carbonic acid is the result of oxidation of carbohydrates, of fats, or of proteids, a difference amounting, according to Rubner,[1] to 29.5 per cent.; or, if only the proteids and fats be considered, to over 20 per cent. In investigations of nutrition it is now known to be of the utmost importance to determine the so-called respiratory quotient—that is, the ratio between the amount of carbonic acid discharged and that of oxygen absorbed. This quotient varies in a definite way with the kind of material oxidized in the body, and an accurate knowledge of it would enable us to draw conclusions as to the substances consumed in fever.

The investigations which have been published within the last few years upon the absorption of oxygen, as well as the discharge of carbonic acid in fever, are to be ranked as most valuable contributions to our knowledge of the subject. The first determination by trustworthy methods of the amount of oxygen absorbed and of carbonic acid excreted in fever was made in Pflüger's laboratory by Colasanti upon a guinea-pig, and was published in 1877. Since that time two careful and elaborate researches upon this subject have been made, the one by Finkler, and the other by Lilienfeld.[2]

These experimenters found that in fever there is increase of the amount, both of oxygen absorbed and of carbonic acid excreted. Making comparison with healthy animals under the same conditions of nutrition, Colasanti found that the increase in the absorption of oxygen amounted to 18 per cent, and in the excretion of carbonic acid to 24 per cent.; Finkler, whose experiments were made also upon guinea-pigs, found, under varying conditions of external temperature, the average febrile increase of oxygen to be 13.8 per cent., and of carbonic acid 15.3 per cent., and Lilienfeld, who experimented on rabbits, found the average increase of oxygen to be 13.9 per cent. The statement of these averages gives an incomplete conception of the oxidation in fever, as they are derived from all stages of fever, and varying elevations of temperature. No constant proportion was found to exist between the height of the temperature and the amount of oxidation. On the other hand, a relation was observed between the oxidation and the stages of fever, viz., the initial stage with rising temperature, the acme with constant high temperature, and the defervescence with falling temperature. During the period of rising temperature oxidation was increased, and in this stage Finkler found the highest percentages, amounting to 36.6 per cent. in the increase of oxygen, and 37.6 of carbonic acid. There were, however, marked fluctuations in this stage, both in the temperature and the amount of oxidation. In the stage of constant high temperature such high percentages were not noticed, and the fluctuations were less marked. The processes of oxidation, according to Lilienfeld, are increased, on the average, less in the acme than in the initial stage of fever.[3] During defervescence of fever the increased oxidation falls, and may sink below the normal. Taking a broad view of these stages, we may say, therefore, that the periods of rising,

[1] Fränkel: Virchow's Archiv, Bd. 67.

[1] Rubner: Zeitschrift f. Biologie, Bd. xxi.

[2] Colasanti, Pflüger's Archiv, Bd. xiv. Finkler, Ibid., Bd. xxix. Lilienfeld, Ibid., Bd. xxxii.

[3] In the period of rising temperature there was an increase of oxygen absorbed of 27 per cent., in the acme of 14.9 per cent.

constant, and falling temperatures in fever, correspond to periods of rising, constant, and falling oxidation, but we must bear in mind that the fluctuations in oxidation are much greater than, and bear no constant relation to, those of temperature; so that, in each period, there are times when oxidation may rise or fall most decidedly without corresponding changes of temperature.

Inasmuch as these experiments have shown that the increased excretion of carbonic acid in fever is accompanied by increased absorption of oxygen, and, as will be explained presently, that the respiratory quotient, if it changes at all, sinks, it is evident that we need not discard experiments in which only the amount of carbonic acid excreted has been estimated by good methods. The most accurate of these experiments are those of Leyden and Fränkel upon fevered dogs.[1] They found that, without exception, carbonic acid is excreted in larger amount in fever than in health under the same nutritive conditions, the excess amounting sometimes to 70 per cent., and in general being larger than in the experiments which have been previously considered. The earlier and meritorious experiments of Senator upon this point did not give uniform results, and he felt justified in concluding that there is no evidence of increased production of carbonic acid in fever. Subsequent experiments with far more accurate methods have demonstrated the incorrectness of Senator's conclusions. It may be well to call to mind that Burdon-Sanderson's deductions, which have naturally had great influence among physicians here and abroad, were based, in great part, upon the data derived from Senator's experiments.

Hitherto, the methods employed in studying the respiratory gases of human beings in fever have not approached in accuracy those used in the experiments described. If the discordant results of Wertheim, which were obtained by methods manifestly very inaccurate, be discarded, all other investigators have observed augmented discharge of carbonic acid in fever of human beings. Leyden found an excess of 50 per cent. in the febrile discharge of carbonic acid; and Liebermeister, whose observations were made chiefly on cases of intermittent fever, found an excess of 30 to 40 per cent. in the period with rising temperature, and of 19 to 31 per cent. in the acme of the fever. During the defervescence of the fever the excess of carbonic acid discharged diminished, and sometimes wholly disappeared. In one instance, in which the determination was made during the rigor of intermittent fever, the carbonic acid excreted was two and a half times the normal amount; an excess so enormous that it was undoubtedly due, in great part, to the muscular movements which attended the chill.

Although we cannot consider these figures as absolutely accurate, they indicate clearly that in human beings, as well as in animals, fever is characterized by increased oxidation, and apparently that, as a rule, in man the excess of oxidation is greater than in the experimental fever of animals. This was to be expected, as it is difficult to produce experimentally in animals anything approaching in intensity the well-marked fevers of human beings.

As the result of these laborious researches we may consider it established that increased oxidation is a part of the fever process. It has been claimed that this augmented oxidation is simply the result of the elevation of temperature, but it can be proven that this is not true. Pflüger has demonstrated that the processes of oxidation are more active at high than at low temperatures of the body, and he has also established the increment of oxidation which corresponds to each degree of rise of temperature. By means of these data Finkler has computed that in guinea-pigs the febrile elevation of temperature of 1° C. could cause an increase of the absorption of oxygen of only 3.3 per cent. Moreover, Lilienfeld found decided increase in the processes of oxidation before there is any marked elevation of temperature, and all the experiments have rendered it quite evident that there is no such relation in fever between the height of the temperature and the energy of oxidation, as would be expected if the augmented oxidation were merely the result of the increased temperature.

There is no reasonable doubt that the more energetic oxidation which we find to be an essential part of the process of fever indicates increased production of heat. Exactly what amount of heat production corresponds to the increased oxidation we cannot know until the kind and the quantity of substances oxidized in fever have been determined. It is to be regretted that no experiments have been made in which the amount of nitrogen excreted has been determined at the same time with the estimation of the oxygen absorbed, and of the carbonic acid discharged. These data would enable us to form some estimate, although not an accurate one, of the amount of heat production corresponding to the oxygen absorbed, unless very different laws from those in health control the oxidation processes of fever.

Mention has already been made of the importance of determining in fever the respiratory quotient, or the ratio between the carbonic acid discharged and the oxygen consumed. A few words will make this clear. It is well known that under ordinary circumstances in health not all of the oxygen consumed reappears in the carbonic acid discharged. This indicates that a part of the oxygen absorbed is used in other oxidations than those resulting in the production of carbonic acid. According to the extent of these other oxidations, therefore, the respiratory quotient must vary. It is probable that these oxidations, of which carbonic acid is not a product, result at least in part, in the formation of water, which is, therefore, one of the excretory products of the body, as has been urged especially by Austin Flint. The influence of various circumstances upon the respiratory quotient has been studied, but what especially concerns us here is that in hunger this quotient sinks, which is to be expected from the fact that in this condition almost exclusively fats and proteids are oxidized. We evidently possess in the determination of the ratio of carbonic acid discharged to the oxygen consumed a means of reaching a conclusion as to a cardinal point in the pathology of fever, viz., whether the processes of oxidation in fever conform to the laws which govern them in health, and particularly whether, as has been often asserted, unusual or incomplete products of oxidation are formed to any considerable extent in fever. Colasanti and Lilienfeld found that the respiratory quotient in their fevered animals did not vary from that of healthy animals under similar nutritive conditions. Finkler observed that the respiratory quotient fell in fever somewhat more rapidly than in hunger, and this he explains by the more active oxidation in fever.

[1] Leyden and Fränkel, Virchow's Archiv, Bd. 76.

All three experimenters reached the conclusion that the substances oxidized are the same in fever as in health, and that other than the normal products of combustion are not formed in fever in any considerable amount. That the metabolism in fever does differ in at least one important respect from that in hunger, is evident from the excessive amount of urea excreted in fever, but considerable variations in the disintegration of albuminous material may occur without much change in the respiratory quotient.

The only determinations of the febrile consumption of oxygen and discharge of carbonic acid in man are those of Wertheim and of Regnard. Both investigators found a decided diminution of the respiratory quotient. The method employed by Wertheim was so defective that no confidence can be placed in his results. The experiments of Regnard[1] are presented with great neatness, but his results on other points differ so much from those obtained by trustworthy physiologists and by better methods, that we cannot accept his conclusions as to the respiratory quotient in fever without confirmation. Regnard found in all fevers which he studied a most marked diminution of the respiratory quotient. If this were true it would follow that in fever a much larger part than in health of the oxygen consumed is employed in other oxidations than those yielding carbonic acid. This would confirm the widely accepted belief that water and products of incomplete oxidation are formed in excessive amount in fever.

From the unfortunate discrepancy of these results it is evident that the knowledge which we now possess of the processes of oxidation in fever is not sufficient to enable us to form from them an accurate estimate of the heat production. In hunger, from one-fourth to one-third of the absorbed oxygen is available for combination with hydrogen to form water, the remainder uniting with carbon to form carbonic acid (Regnault and Reiset). If in fever the same ratio exists, then the excess of heat production would be proportionate to the excess of oxygen absorbed, assuming that the substances oxidized are the same in both conditions; if, however, as Regnard's experiments indicate, a larger proportion of oxygen is available in fever for the oxidation of hydrogen, then the increment of heat production would be still greater, for the same amount of oxygen produces more heat when employed in the oxidation of hydrogen than in that of carbon. It is also to be considered that the same quantities of hydrogen and of carbon in their oxidation yield varying amounts of heat according to the chemical compounds in which they are contained, and we cannot say positively whether the compounds oxidized are the same in fever as in health under like conditions of nutrition. Upon the whole the weight of evidence is in favor of the view that the excess of heat production in fever is approximately proportionate to the increase in the consumption of oxygen, but it would be rash to assert this positively. It is evident that in fever ordinarily a much smaller amount than in health of the energy resulting from chemical processes is transformed into external mechanical work, so that relatively more remains in the form of heat.

In connection with this discussion of the possibility of unusual sources of heat in fever may be mentioned an hypothesis which has been advanced with much ingenuity by Dr. Ord.[1] This hypothesis is based upon the assumption, which is probable enough, that there are in the body chemical processes in which heat energy is transformed or rendered latent. These processes are thought to be chiefly those concerned in the building up of tissue. It is argued that inasmuch as the construction of tissue is manifestly in abeyance in fever, the amount of heat in the body may be increased not only by disintegrative processes, but also by "the persistence in the form of heat of energy which should have taken another form." That these building up processes influence decidedly the amount of heat produced in the developing ovum has been demonstrated by d'Arsonval's calorimetrical determination that the egg during incubation absorbs heat, notwithstanding the consumption of oxygen and the excretion of carbonic acid. This fact, which might have been predicted, certainly does not justify us in refusing to attach any calorimetrical value to the determination of the respiratory gases and the urinary nitrogen. From the little we know of these constructive processes in human beings we should infer that the amount of energy in the form of heat which they appropriate bears only a very small ratio to the total heat energy set free by heat-producing processes, so that their cessation would not bring a large increment to the heat of the body. Moreover, these constructive processes are also in abeyance, although doubtless to a less extent, in starvation, with which experimental fever is usually contrasted as regards heat production and heat loss. It is not probable that any extraordinary difference in the behavior of the processes of tissue-building in fever and in starvation can occur without affecting the respiratory quotient. For the present, therefore, we cannot attach any great importance, so far as the increase of heat energy in fever is concerned to the inactivity of heat-absorbing processes.

We have gone over now the evidence which, in my judgment, establishes the fact that there is increased production of heat in fever. The same conclusion is reached also by the study of the loss of heat from the body in fever. That fever is accompanied by increased production of heat and by more active combustion, has been in all ages the belief of the majority of physicians. This belief, however, has been rather instinctive than based upon actual demonstration. It has been contested by investigators of great ability, and on the ground of scientific observation. For these reasons, and on account of the importance of the subject, it has seemed to me desirable to present to you the exact evidence, although many of its details, I fear, may have wearied you. We have learned, moreover, certain facts concerning febrile thermogenesis which the mere observation of fever patients does not render so apparent. We have found that there is no definite relation between heat production and the height of the temperature, so that we may have excessive thermogenesis with low as well as with high temperatures. There appears to be, however, a relation between the stages of fever and heat production, this being in spite of remarkable fluctuations greatest in the initial stage, and least in defervescence.

Although for reasons which have been mentioned, and others might have been adduced, we can attach hardly an approximative value to figures which purport to give

[1] Regnard: Recherches Exp. sur les Variations Pathologiques des Combustions Respiratoires. Paris, 1878.

[1] Ord: British Medical Journal, 1885, vol. ii.

the actual heat production in fever, still, unless far more serious errors than seems possible inhere in the methods of direct and of indirect calorimetry, we can draw one important conclusion. This is that while an individual in fever produces more heat than he would in health under similar conditions as to food and muscular movements, he does not produce necessarily in fever more heat than he would in health on a full diet. And it is certain that he usually produces far less heat in fever than he often does under circumstances which normally increase heat production, such as a cool environment and muscular exercise. That one in health, with little or no change of temperature, may produce twice or more the quantity of heat which he produces in fever, makes it plain that it is impossible to explain febrile rise of temperature simply on the basis of increased thermogenesis, or what probably comes to the same thing, of increased oxidation. That in health vastly increased heat production may occur with comparatively little change of temperature is, of course, due to the fact that the dissipation of heat is proportionately increased. It is self-evident, and, so far as I know, has never been disputed that in fever the equilibrium is so disturbed that heat loss does not correspond to heat production as it should in health. This disturbance of equilibrium can be brought about in various ways, and it is only by the determination of the actual heat production and heat loss in fever that we can say in what direction the balance is disturbed.

We have found that the production of heat is increased in fever when the comparison is made with like conditions of nourishment and of environment. It is obvious that the total loss of heat cannot equal the total production of heat during the period of febrile rise of temperature.

As is well known, most of the heat of the body is liberated from the skin and from the lungs; from the former by radiation and conduction and by the evaporation of moisture, and from the latter by evaporation of moisture and warming the respired air. It has been estimated that in man about eighty per cent. of the total heat dissipation is from the skin.

The method of direct calorimetry, already described, has been applied only to animals for the determination of the total heat loss in fever. Here Wood's experiments are the best which we possess. Leyden and Liebermeister have furnished calorimetrical data which, although unsatisfactory in many respects, indicate the general direction of febrile heat loss in human beings. All of these experiments show that more heat is dissipated in fever than under like conditions in health. The fluctuations of heat loss during a febrile paroxysm are so great that the statement of an average for the entire period has little significance. Such an average, according to Wood's results on fevered dogs, would fall between twenty to thirty per cent. excess of heat loss as compared with the loss in health under like conditions of food. The dissipation of heat in fever, however, may be at times more than double the normal amount, and again may sink below the norm. We have not sufficiently accurate estimates either of the total amount of heat produced or of that dissipated during a febrile attack to enable us to strike a balance between the two. Some persons have been so impressed with the large amount of heat lost during certain periods of fever, that they have concluded that there must be far greater excess of heat production than previous investigations have shown to be probable. They suggest that there are sources of febrile heat of which at present we have no idea. Such conclusions seem to me quite unwarranted, when we consider the behavior of heat-loss, not for a limited time but throughout the different stages of a paroxysm of fever. We have already seen that we obtain no satisfactory conception of febrile production of heat unless we follow it during the stages of fever, and this is no less true of heat dissipation. The observation of the condition of the skin as regards temperature and moisture must in all ages have afforded an insight into the general behavior of heat dissipation during the different periods of fever. It does not require any instruments of precision to make plain the fact that a cold, dry skin, such as we observe during a febrile chill, liberates less heat than normal, or that a hot, moist skin, such as we are likely to find at the defervescence, loses more heat than normal. Not quite so evident is the direction of heat loss during the hot stage or acme of a febrile paroxysm or fastigium of a continued fever. Here the skin usually appears hot and dry. The ordinary impression that more heat than normal is dissipated during this stage is supported by calorimetrical experiments. There can be no doubt that the elevation of the cutaneous temperature which we observe in the hot stage of fever causes an increase in the amount of heat lost by radiation and conduction. Similar elevations of cutaneous temperature in health, such as those caused by muscular exercise, are accompanied by increased moisture of the surface. Not only is visible perspiration usually absent during the hot stage of fever, but the invisible perspiration is, as a rule, relatively although not absolutely diminished, as Leyden has shown. The dryness of the skin, therefore, is a factor which in the hot stage of a fever tends to lessen heat dissipation. Clinical observation, however, shows that fevers differ markedly from each other as regards perspiration during the hot stage, the skin being sometimes bathed in perspiration without any depression of temperature. It would undoubtedly be of great interest to possess trustworthy data as to the exact loss of water from the surface of the body in different fevers and at different stages of fever. We cannot place much reliance upon the indications afforded by Weyrich's hygrometer, which has been repeatedly used for this purpose. More is to be expected from the method employed by Peiper[1] in studying insensible perspiration under physiological conditions.

The general impressions regarding febrile loss of heat derived from clinical observations, are supported by calorimetrical experiments. The dissipation of heat is least during the initial stage of fever, and greatest during the period of defervescence. During the hot stage or fastigium heat dissipation exceeds the normal, but usually, on account of the dryness of the skin, not so much as one might infer simply from the impression of heat received by the hand when placed upon the skin.

During the initial period the loss of heat, although on the average less than in the following stages, is usually greater than normal. If, however, the rise of temperature be rapid the heat loss falls below the normal amount. As there is now increased production of heat, there is evidently a glaring disproportion between the two factors, heat production and heat loss, and under these circumstances the febrile attack is likely to be ushered in by a chill.

[1] Peiper: Zeitschr. f. klin. Med., Bd. 12.

During the febrile chill all the efforts of nature combine to produce in the shortest time the greatest possible elevation of temperature. Not only is heat loss reduced to a minimum, but heat production is excited to the utmost.

During the period of defervescence, on the other hand, the relation between heat loss and heat production is reversed. This is, of course, most apparent when the fever terminates by crisis with rapid fall of temperature. Then the loss of heat is excessive, being sometimes threefold that in the normal state, and the production is relatively and often absolutely diminished.

It is of importance to remember that there are continual and irregular fluctuations in the dissipation of heat during the different stages of fever. These fluctuations bear no definite relation either to the momentary production of heat, or to the height of the internal temperature. We deal in ordinary life so much more with units of temperature than with units of heat that it is difficult for us to keep constantly in mind the fact that no inference can be drawn as to the height of the internal temperature from the knowledge of the momentary heat production and heat loss. If the heat loss fall behind heat production the temperature of the body rises, and it can remain at this elevated point with either diminished or increased heat production so long as the heat loss equals heat production.

No correct conception of the condition of the heat-regulating mechanism in fever can be obtained without taking into consideration these irregular variations in the discharge of heat, and it is a merit of Senator and his pupils to have emphasized particularly this point. These variations are made apparent not only by calorimetric measurements and direct observation, but also by the studies which have been made of the cutaneous temperature in comparison with the internal temperature in fever. Hankel's law that the difference between the temperature in the axilla and that of the surface of the body in the febrile condition is less than in the normal condition manifestly does not hold for the chill, in which it has been proven that the superficial temperature falls while the internal temperature rises. Jacobson, Wegscheider, Schülein,[1] find that there constantly occur in the course of most fevers changes of the superficial temperature, which stand in no relation whatever to alterations of the internal temperature. Schülein thinks that he has discovered some facts in this regard which are available in diagnosis. However this may be, these observations indicate that contraction and dilatation of the cutaneous vessels are constantly occurring, and without any regularity, in fever. These irregular variations in the calibre of the bloodvessels are also apparent to the eye in the vessels of the rabbit's ear during fever. When it is considered, furthermore, that these irregularities of cutaneous circulation vary decidedly in different situations, no further proof is needed that the mechanism which regulates the discharge of heat from the surface of the body is profoundly disturbed in fever.

These alterations in cutaneous circulation are such striking phenomena that it is perhaps not surprising that two great medical authorities should have based upon them exclusively theories of fever, Traube assuming excitation and Marey paralysis of vaso-motor nerves as the primal element in fever. We need not discuss these theories, now generally abandoned in their exclusive form. From what has been said concerning the loss of heat in fever, it is evident that we cannot explain febrile rise of temperature solely by the behavior of heat dissipation any more than we can explain it solely on the basis of increased heat production. In rejecting Traube's theory that fever is the result solely of retention of heat we must still recognize the fact that decrease in the dissipation of heat, at times absolute, at other periods relative, is a factor of the utmost importance in the febrile process.

From whatever point of view we consider the question we cannot avoid the conclusion that it is the mechanism which controls the relation of heat production to heat loss, which is disturbed in fever.

Heat production is increased in fever, but if the regulating mechanism were normal, then the discharge of heat would be proportionately increased and the temperature would not be materially affected. Nor would the force of this argument be changed if febrile thermogenesis were twice as energetic as we suppose it to be.

The loss of heat is increased in fever, so that on this ground alone we should be obliged to assume increased heat production. But, even if it were proven that heat dissipation is diminished, as has been recently claimed again by Rosenthal,[1] and that fever is the result of heat retention alone, it would still be necessary to admit that the regulating mechanism is at fault, for Pflüger has demonstrated that when this is normal, changes in the temperature of the skin are attended by such changes in heat production that the internal temperature remains within wide limits unaltered.

I repeat then that the conclusion is forced upon us that the fever-producing agents must act either directly or indirectly upon the mechanism regulating the harmonious relation of heat loss to heat production.

(To be concluded.)

[1] Jacobson: Virchow's Archiv, Bd. 65. Schülein: Ibid., Bd. 66. Wegscheider: Ibid., Bd. 68.

ORIGINAL ARTICLES.

A CASE OF RADICAL CURE OF HYDROCELE BY EXCISION OF THE TUNICA VAGINALIS TESTIS.[2]

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A man, æt. sixty-three, was admitted to St. Mary's Hospital, December 17, 1887, with a hydrocele of three years' standing. The tumor was as large as a good-sized orange. For the following notes of the case I am indebted to Dr. J. C. Heisler, surgical interne.

December 20, 1887. An incision was made the whole length of the tumor. The hemorrhage from the scrotum was quite free, but was easily controlled by hemostatic forceps, and eventually no vessel required ligation. The sac was then incised, when its liquid contents at once escaped, and the edges of the sac were seized on each side by hemostatic forceps. By means of the fingers and the closed points

[1] Rosenthal: Deutsche med. Wochenschrift, 1888.

[2] Read before the Philadelphia Academy of Surgery, March 5, 1888.

of a probe-pointed pair of scissors, the tunica vaginalis was then dissected from the surrounding tissues of the scrotum, until its attachment to the cord and testis was reached. The loose tunica vaginalis was then cut off close to the testis and cord, and the wound was accurately closed by five sutures, horsehair drainage being provided. No hemorrhage of importance occurred from the sac or during its dissection.

Strict antiseptic precautions were used (but no spray), carbolic acid 1 : 24 for the instruments, and bichloride of mercury, 1 : 1000, for the hands, sponges, etc. A sublimate gauze dressing was then applied and retained by a broad T-bandage, the abdomino-scrotal portion being triangular in shape, with an aperture for the penis.

At 7 P. M. of the same day, five hours after the operation, the patient's temperature was normal, his pulse was 58, and he was suffering some pain. The temperature rose on the following evening to 100.2° F., which was the highest point attained, and from which it gradually declined, to reach the normal standard on the fifth day after the operation.

The dressings were changed on the first day after the operation, and were nearly saturated and stiff from the oozing of bloody serum.

On the third day, at the second dressing, three of the five sutures were removed, as was also the horsehair used for drainage.

On the seventh day the two remaining sutures were taken out, the dressing discontinued, and the patient allowed to get up with the scrotum in a sling. Beyond the slight pain on the evening after the operation, the patient suffered no inconvenience, except that incident to confinement to bed. He was entirely well on the 31st, but for other reasons did not actually leave the hospital till January 7th.

Remarks.—Until recently various methods of injection, especially by iodine or carbolic acid, have been the chief and almost the only means employed in the treatment of hydrocele. They have the great advantage that but few deaths can be laid to the use of iodine, and none, I believe, to carbolic acid. But they have several disadvantages.

First, that of recurrence. In over eight per cent. of the cases treated by iodine, recurrence takes place, and this misfortune sometimes even occurs a second time. Carbolic acid has been much less widely used, but its promise as to freedom from recurrence is much better than iodine, and if injection be the method chosen, this would seem to be the preferable one.

Secondly. In a large number of cases additional lesions are found besides the hydrocele, lesions which in the majority of cases cannot be cured by any injection. In 123 cases reported by Juillard and Senzmer (The Medical News, May 3, 1884) cysts were found in 43, enlargement of the testicle and epididymis in 23, thickening of the tunica vaginalis in 54, false membranes in 26, and free or attached foreign bodies in 3.

Thirdly. There is generally great pain.

Fourthly. Not seldom severe inflammation and swelling, sometimes suppuration, and occasionally even gangrene of the scrotum occurs.

Fifthly. Even if no such untoward results occur there are great induration, weight, and tenderness in the scrotum, such that the patient is usually laid up for three weeks, and sometimes longer.

Three somewhat different methods of open antiseptic incision have been proposed as substitutes for injection, and especially with a view to a more permanent radical cure. Volkmann incises the sac, and after syringing it out with a three per cent. solution of carbolic acid, unites the edges of the tunica vaginalis to the skin, and, after drainage, dresses the wound with an antiseptic compressing gauze and bandage.

Juillard took a step further. After incision of the sac, and removal of all pathological products by the scissors or spoon from the sac, cord, or testicle, he then resects the superfluous tunic, leaving only enough to cover the cord and testis. The edges of the tunica vaginalis are then sutured with catgut and the external wound closed independently, drainage and antiseptic gauze completing the dressing.

Bergmann (reported by Bramann, *Berlin. klin. Wochenschr.*, April 6, 1885, p. 209) went a step further, and proposed the total extirpation of the free part of the tunica vaginalis, only leaving that portion attached to the cord and testis. Of course, any other concomitant lesions are appropriately treated at the same time. Bramann reports twenty cases, with rapid cure in eleven days, without fever or suppuration. Bull has reported two cases (hydrocele of the cord) thus operated on, one of which had been twice injected with carbolic acid, and the other once with iodine. Both rapidly recovered. Southam (*Lancet*, September 10, 1887) reports four cases, one of which had recurred after carbolic acid injection, cured with an equally speedy and happy result.

To these twenty-six cases I add but one, but it is an excellent illustration of the slight reaction following the operation, and of the quickness of the cure.

It would seem, *first*, to be almost an impossibility that recurrence should take place, for practically none of the sac is left, and in so far it would be *à priori* the ideal radical operation.

Secondly. This method facilitates the proper treatment of any additional lesion above described as not uncommon.

Thirdly. As is usual after antiseptic wounds, there was little or no pain.

Fourthly. As again is the rule in wounds so treated, there was little inflammation, practically no fever, not a drop of pus, and no seeming possibility of gangrene.

Fifthly. There were only moderate induration,

weight, and tenderness, so that the patient was up and about on the seventh day, and was ready for discharge on the eleventh day entirely cured and comfortable.

Sixthly. Although a more radical operation than that of Volkmann, it is less painful and less dangerous. In 254 cases collected by the writer in The Medical News (*supra*) recurrence is noted in three, and two died of septicæmia and pyæmia, while abscess, sloughing, and orchitis have all occurred. Induration, weight, and tenderness have persisted from three to four weeks. The conditions after resection of the entire tunica vaginalis and immediate closure of the wound, with drainage, and antiseptic dressing are such as to favor the speediest and safest recovery, without any of the dangers above noted as following antiseptic incision.

The case is also a good illustration of "the conditions conducive to the *earliest possible* healing of operation wounds," to which I have called attention in a paper with the above title, read before the Surgical Section of the New York Academy of Medicine (*Medical Record*, January 28. 1888), especially the method of drainage by horsehair instead of rubber, glass, or bone tubing, as is suited best to so small a wound, and the change of dressing on the day after the operation, recovery being complete in seven days.

SALICYLATE OF SODA IN POLYURIA.

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of Decatur, Illinois.

On June 23, 1887, Mrs. L. brought to my office her daughter, aged eleven years. The child was of large frame for her years, but pale and flabby, and though the weather was warm she complained much of cold hands and feet. The mother informed me that the child was voiding too much urine. They were requested to return after a lapse of twenty-four hours, during which the mother was to determine accurately the measure of the urine. This was found to be nine and a half pints (milk measure). Urine was found to contain no sugar. Fluid extract of valerian in half drachm doses three times daily was given for ten days to no purpose. Thirst during this time was insatiable. The child was directed at the first visit to quit her attempts to learn music, to do as little work or play as possible.

Ergot and tannic acid were given next for ten days; the former in half drachm doses three times daily, and five grains of the latter, to be given alternately. They did no good.

It was now near the middle of July; the thirst was difficult to appease, the quantity of urine was as great as before, and the child was weaker and further reduced in weight to seventy-nine pounds. The urine was found, as before, to be free from glucose.

She was now given eight grains of salicylate of soda in aqueous solution after each meal; her meals were small. In ten days there was an appreciable amendment; she had more solicitude about her food; she felt stronger. The treatment from this time forward, consisted of nothing else than the salicylate of soda; the dose of eight grains was increased to ten, but so much complaint of headache was excited that I was obliged to suspend dosing for a few days. No restriction was imposed upon the choice of food.

The amount of urine diminished slowly but steadily until, in November, the daily discharge was two and a half pints. In the meantime her color returned, there was no longer complaint of lassitude and of inability to breathe easily. Her weight was increased to eighty-seven pounds. She was sent to school, and has manifested no illness of any sort since. The remedy was discontinued early in December.

I am aware that little importance is to be attached to a single result of this sort, and regret that further opportunity has not been mine to test the efficacy of this remedy; but cases of polydipsia are not of common occurrence, and, rather than wait until time shall bring to me chances to test the value of this remedy, I submit this report for what it is worth. I regret that I am unable to state the duration of this affection prior to my first acquaintance with the case. The mother was aware that the child had been obliged for weeks to rise repeatedly during the night to void her urine, but was astonished at its volume when she measured it. It is scarcely necessary to add that the mother's attention had been excited by the consuming thirst for weeks before she took any measures for its relief, or before she deemed any explanation necessary.

NOTES ON THE PAST AND PRESENT MORTALITY AND TREATMENT OF PNEUMONIA.[1]

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of Philadelphia.

Observation and experience, beginning more than forty years ago, along with such attention as has been within my power to current medical literature, have made me acquainted with a process of transition going on in medical practice, especially in regard to the treatment of acute inflammatory affections, of which pneumonia may be considered as a type. Between 1845 and 1855, the accepted treatment of pneumonia was what was then called moderately antiphlogistic; including early and moderate abstraction of blood in patients of good strength and not over middle age, early purgation with some active cathartic medicine, and then the use of agents, chiefly mineral salts, to promote and maintain the action of the skin, kidneys, and bowels; very little use of opium being made, unless at a late stage, and quinine being reserved for that period as a tonic; alcoholic stimulation being resorted to only in cases of exceptional prostration, as in aged patients, or in

[1] Abstract of a paper read before the College of Physicians of Philadelphia, February 1, 1888.

those of enfeebled constitution, or when a severe and prolonged attack brought on decided exhaustion.

Under this treatment, in private practice, patients with uncomplicated pneumonia and pleuro-pneumonia very generally recovered; and in hospitals their mortality was hardly more than one death in ten cases; often considerably less than in that proportion. In Suffolk Hospital, England, in 1835, it was only one death in fifty cases.

Between 1855 and 1860 a movement of reaction went on against bloodletting, in which Dr. J. Hughes Bennett was one of the most conspicuous leaders. This was shortly followed, in part, indeed, accompanied, by the introduction, under the leadership of Dr. R. Bentley Todd, of the early and free use of alcohol in pneumonia and other acute inflammatory diseases. Next came the era which still continues, of physiological rationalism in therapeutics; characterized by a general abandonment of previously approved principles and methods, and the substitution for them of the use of potent agents upon special indications in regard to functional actions and conditions, these agents being first tried in the laboratory upon animals, either in a state of health or in various conditions of traumatism. Prominent among the agencies thus lately much used in practice are those designed, as "apyretics," directly to lower the temperature of the body when it is abnormally elevated in disease.

The "working theories" of practice in acute inflammatory diseases have thus, with very little appearance of distinct formulation, undergone a gradual, but very positive change. To-day the predominant method of treatment of pneumonia may be said to be characterized by the following features: 1, the practically universal omission of venesection, and the very rare local abstraction of blood; 2, the general disuse of active cathartic medicines in the early stage; 3, by many, perhaps a majority of physicians, the early and continued use of alcohol, to the extent of from 2 to 12 or more fluidounces in 24 hours; quinine, mostly in 10 or 20 grain doses, once or twice daily; opium, or morphia, from the start or near it, averaging perhaps sulphate of morphia gr. $\frac{1}{12}$ to gr. $\frac{1}{8}$, every 3 or 4 hours: with deviations from this general plan, or additions to it, by the use of antipyrin, antifebrin, aconite, digitalis, etc.; and warm applications, as poultices, or cotton batting to the chest, or counter-irritation with turpentine, etc. These last may be said to be common to the old and the new methods of treatment.

For definite information sustaining this account of now predominant practice, I refer to Hospital Notes, published last year, of hospitals in New York, Boston, and Philadelphia; also, memoranda furnished me during last year by a resident physician in one of our largest and best hospitals; and the *dicta* concerning treatment, of Dr. A. L. Loomis, in his article on "Croupous Pneumonia," in vol. iii. of the *American System of Practical Medicine*.

It is entirely legitimate to apply to these old and new, different, and in some respects opposed, methods of practice, careful *reasoning* as to the principles upon which they are based. Considerable attention is given to this kind of comparison in the paper of which this is an abstract. Yet it is also appropriate, and is more nearly decisive in importance, to bring to bear upon them the testimony of *facts* concerning the *results* of the different modes of treatment which are compared. It is true that an absolute demonstration of therapeutical conclusions by means of statistics is not often practicable. My opinions on this subject have not been founded upon statistics, but upon direct personal experience. But, when evidence of that kind, of a marked character and considerable in amount, can be adduced, it is manifestly worthy of careful attention, even when the conclusions to which it points are different from those which, in practice if not in theory, are in vogue, and which are approved by highly respected authorities, at the present time. Such evidence it is the principal purpose of my paper to bring forward, and to apply to the question, how we ought to treat acute, uncomplicated pneumonia, in patients of ordinarily good constitution, not over middle age.

From sources and authorities which will be admitted to be reliable, and which are referred to in full in the paper of which this is an abstract, I have obtained and analyzed statistics, of which I will now give a summary account. I will say that, throughout my analysis of these statistics, I have made liberal allowance in favor of that construction of the facts which is most opposed to the conclusion which my judgment approves. On behalf of the latter, a much stronger case might be made out, if my aim were anything other than the actual truth.

First, a comparison is made of the results of different modes of treatment of pneumonia, within a few years prior to 1858, reported by between forty and fifty physicians, of 11,627 cases in Great Britain and Ireland and on the continent of Europe. Of these, 2751 cases were treated with bleeding, and 8876 without it. Among the latter, however, 452 cases had exceptional modes of medication in the use of chloroform, lead, copper, or iron. Deducting these, the comparison rests between 2751 cases treated with, and 8424 cases without bleeding. The figures, in summary, are these:

With bleeding, either often, a few times, or once, with or without tartar emetic, altogether, 1 death in 11.1 cases.

Without bleeding, under all treatments except with opium—except, also, with chloroform, copper, or iron, as before said—1 death in 9.7 cases.

Large and repeated bleedings, alone, 1 death in 11.6 cases.

Bleeding a few times, or moderately, alone, 1 death in 12.3 cases.

Bleeding and tartar emetic, 1 death in 12.56 cases.

Tartar emetic, no bleeding, no opium, 1 death in 11.3 cases.

Opium, without bleeding, 1 death in 3.3 cases.

Tartar emetic and opium, without bleeding, 1 death in 3.8 cases. I would call attention especially to these last figures, for the greatest mortality obtained under any method was that under the opium treatment of pneumonia.

Next, I present a comparison of mortality from pneumonia in the United States Army, at two periods: one before the anti-bloodletting movement had fairly set in, and the other, when it had begun to make a decided impression upon general practice. Between 1840 and 1854 there were, in the United States Army, 1416 cases of pneumonia, with 127 deaths—1 in 11.15: between 1855 and 1859, 657 cases, with 97 deaths—1 in 6.67: an increase of more than one-third in the proportion of deaths.

The testimony of Dr. George B. Wood, in the first edition of his *Practice*, published in 1847, was decided as to the favorable prognosis of uncomplicated pneumonia, especially in early life. Dr. Lewis P. Gebhard, of Philadelphia, whose practice began near the beginning of this century, and was extensive for many years, told me, near the end of his life, that he had never lost a case of simple pneumonia.

Examining the records of the Pennsylvania Hospital, as a representative institution, with a medical staff excelled by none in reputation and ability, I have found the results to be as follows: in the three years, 1845, '46, and '47, from pneumonia and pleuro-pneumonia, 1 death in 16 cases—6¼ per cent.; in the years 1865, '66, and '67, 1 in $5\frac{4}{10}$th, or 18½ per cent.; in 1884, '85, and '86, 1 in 3.2, or more than 31 per cent. To make sure the avoidance of the error of confounding cases of acute tuberculosis with pneumonia, in this comparison, I invariably took only those fatal cases in which the diagnosis of pneumonia was entered at the time of the *death* of the patient. In collating some other statistics of the same hospital, which were cited in the discussion upon my paper in the Philadelphia College of Physicians, I believe this precaution was not taken; and hence a greater mortality was inferred, throughout the time investigated.

Dr. A. L. Loomis, in his article on "Croupous Pneumonia" in the *American System of Practical Medicine*, states that the average ratio of deaths from pneumonia to those from all diseases together, in New York, was 15.2 per cent. greater between 1859 and 1877 than between 1840 and 1858.

Other figures are given more fully, with references to their authorities, in my paper. The figures may be altogether summarized thus: first, all prior to, or not later than, 1858:

Skoda estimated the average mortality of pneumonia, about 1841, as 1 death in 8 cases. Balfour, near the same time, reported his observation in a homœopathic hospital under Fleischmann (treatment probably *nil*), of a mortality of 1 death in 6⅓ cases; Dietl, with diet only, no bleeding nor medication, 1 death in 13.5 cases; in the British army, at home and in various stations, average of all together, 1 death in 20.66 cases; hospitals in a number of different cities in Europe, from 1822 to 1856, average 1 in 9 54: United States Army, as already said, from 1840 to 1854, 1 in 11.15; Pennsylvania Hospital, as before mentioned, 1845, '46, '47, 1 in 16. Taking all these together, it is safe and fair to estimate the average mortality of pneumonia, during the second quarter of this century, as not more than 1 death in 12 cases, or 8.33 per cent.

Coming now to the recent and present mortality of the same disease, we find it editorially stated in The Medical News of December 11, 1886, that "the rate of mortality" of pneumonia "in the large general hospitals in this country is rarely below, more often above, 25 per cent., which represents about the average death-rate from this disease in the Northern and Southern armies during the Civil War." It is added, that "in this country extensive statistics of pneumonia in private practice are not available; but in the recent returns of the Collective Investigation Committee of the British Medical Association, the mortality was 18 per cent." This last ratio, it will be perceived, is considerably more than double the carefully computed mortality of pneumonia before 1858, namely, 8.33 per cent. We have thus, I think, a *demonstration* of the large increase in the proportion of deaths from that disease in recent times, over what it was thirty, forty, and fifty years ago.

How is this increase of mortality to be accounted for? Three hypotheses are conceivable.

1. The records may be supposed to have undergone modification through improved methods of diagnosis. There is no ground for this supposition. The physical signs, as well as the symptomatology, of pneumonia, were well understood forty and more years ago, by those physicians whose reports have furnished materials for the statistics which have been cited. The use of percussion, in aid of diagnosis, dates with Auenbrugger, 1761: auscultation began with Laennec, about 1818.

2. "Change of type" of the disease may be asserted; or a general change in the constitutions of men, affecting the character of all diseases. Reasons are given in my paper for believing that neither of these hypothetical assumptions has such support in facts as at all to meet the requirements of the case. While, at all periods, it may be sometimes sthenic and sometimes asthenic or typhoid, pneumonia is practically the same disease that it was forty or fifty years ago.

Lastly, therefore, we are brought to dwell upon the coincidence between this great increase in the mortality of pneumonia and a marked change in prevailing methods of treatment.

What has brought this change of treatment about? Is it a better knowledge of the pathology of pneumonia? No. Autopsic and microscopic investigations have cleared up certain minutiæ, as to the distinction, for example, between croupous and catarrhal pneumonia. But we still have, as ever, the first stage, of congestion; and, the second, of red hepatization of the lung; in other words, primary *stasis*, with interrupted nutrition, at the focus of inflammation; concentric hyperæmia there, and general vascular excitement of the system; then exudation, whose changes chiefly determine the result, as least so far as the lung is concerned. The increased vascular tension following a local obstruction to the circulation, gave the indication for measures of relief in the older practice; and that *indication* still remains, in the presence of the most advanced researches as to either the crass or the minute morbid anatomy of pneumonia.

Attention is given in my paper, at length, to the opinion now entertained by some pathologists, that pneumonia is a systemic fever, with lung changes as merely its local manifestations; especially in connection with the theory of the microbic causation of the disorder. Jaccoud, in France, and Dr. H. B. Baker, in Michigan, are cited as having not long since[1] given *demonstrative* evidence that the essential, necessary cause of pneumonia *cannot* be microbic; dry cold having the most to do with its production, in at least much the larger number of cases; while the bacilli and micrococci often found present may, no doubt, exercise a morbific action, affecting the character of the disease. If, however, it were even proven that pneumonia depends upon microbes for its causation, that would not decide the question of its treatment, while we are not in possession of direct and certain microbicidal measures of therapeutics.

By all these considerations we are led at last to the conclusion, that the change in practice that has been referred to, has no other origin than a fluctuation of opinion, not justified by facts or reasoning, concerning certain principles in therapeutics. This fluctuation involves:

1. A depreciation of the value of the early abstraction of a moderate amount of blood, locally or by venesection, for the relief of active inflammation, in persons of good previous health, and not advanced in age.

2. A like depreciation of the utility of early catharsis, especially as an eliminative agency, to prevent the accumulation in the system of the products of regressive metamorphosis of the tissues.

3. The same want exists of due valuation of salines, formerly called refrigerant medicines, for lowering blood-pressure and promoting the functional activity of the skin and kidneys, as well as the bowels.

4. An erroneous, exaggerated estimate prevails of the beneficial influence of large doses of quinine, employed for the reduction of temperature. Testimony is accumulating as to the failure of the use of quinine in antipyretic doses in the treatment of pneumonia. Drs. Bartholow and Osler, in Philadelphia; Drs. Kinnicutt, Ripley, Putnam Jacobi, Castle, Billington, and Emmett Holt, in New York; and Drs. Shattuck and Minot, of Boston, are among those who dissent from the now common approval of this point of practice.

5. An especially injurious error consists in the administration of opium and morphia at an early stage of pulmonary inflammation. The tendency of opiates to *diminish bronchial secretion* stands right in the way of their utility in pneumonia. I may here recall the statistical fact, mentioned a little while ago, that in the reports of results of different modes of treatment before 1858, the worst record of all was attached to the opium treatment of pneumonia.

6. An experimental administration is now being carried on of antipyrin, antifebrin, etc., as antipyretics, whose results do not correspond with what is desired of them as remedies for acute organic inflammation. They have another rôle, as neurotic medicines, in which they possess much value. I may remark incidentally, as an example, that in Dr. Pepper's interesting case, reported in the *Medical and Surgical Reporter* early in last year, it appears to me probable that it was the *neurotic* element in the case—the strongly marked tendency to convulsions—that received benefit from the antipyrin used rather than the pneumonia itself.

7. The practical ignoring must be noticed, in recent therapeutics, of the important difference between the debility of *oppression* in the early period of severe attacks of acute disease, and the *exhaustion* which belongs to a later stage of the same, or which is produced by other causes and conditions. The *treatment* of these two states, as was long ago recognized, is properly quite different.

8. Connected with this, the early and free use of alcohol is now common. In my judgment, except in previously enfeebled patients or those otherwise exceptionally prostrate, this is an injurious medication in pneumonia. Heart-failure during the early stage, in patients of previously good health, may be best averted by so lightening the burden of oppression imposed upon the heart, as to make it possible for it to carry its load without exhaustion. It is under a prevailing so-called "supporting" treatment that

[1] Jaccoud's paper was communicated to the Académie des Sciences, and was reported May 7, 1887, in La France Médicale. Dr. Baker's investigations have been made public in several places within a year or two.

not a few men in the prime of life have, within a few years, dropped off under less than a week's illness with pneumonia.

The relief often afforded by bleeding, without consequent exhaustion, even at a somewhat late stage, to the condition characterized by distention of the right heart (this being a practice approved even by many physicians who are otherwise opposed to bloodletting) should be remembered and set over against the excessive fear entertained by some of the production of debility by early bleeding.

I conclude, then, that there is reason for the judgment that the now current "working theory" of the treatment of pneumonia and allied affections, by early and continued stimulation and narcotism, is not supported by the facts concerning the results of that treatment, as compared with those of the *moderate, early*, sedative and eliminative practice of forty and fifty years ago.

I do not assert that venesection is called for in nearly all cases; but I believe that early local depletion will do good in the majority, in patients not old, and who were previously in good health; and that early active catharsis, with diaphoretics and diuretics afterward, are rightly in place: quinine as a tonic, and alcohol as a stimulant, being indicated only exceptionally at the beginning, in persons of low vitality or bad habits, or old age; more often, when real exhaustion is imminent, at a late stage.

There is more room for question, on the basis of experience, between the older practice and pure expectancy, nursing the patient in bed without medication, than there is between the therapeutic methods now current, in regard to acute inflammatory affections, and those of the early part of this century. We want no return to any Sangrado extreme; but only to replace in their position of confidence, lost for a time, some of those measures of practice which have been abundantly tested and commended by the experience of ages.

MEDICAL PROGRESS.

The Pulse in Children.—Jacobi, in the *Brooklyn Medical Journal* for March, 1888, writes as follows on this point:

The pulse of the infant and child offers a great many differences from that of the adult, both in frequency and volume. As already stated, the pulse of the fœtus varies from 124 to 144 or 150 or more. Immediately after birth it is very much less frequent. Within an hour it assumes a certain regularity, and still the figures furnished by a large number of competent authors appear to prove the greatest difficulties in obtaining uniform results. From what I have observed, J. L. Smith is correct in fixing the number of heart-beats in a minute at 126, his lowest figure being 96, his highest 164. According to some, the average figure rises during the second half of the first month, and then proceeds slowly to decrease. From the first to the sixth month the pulse is 120 during sleep, 130 to 135 while awake. It is 100 at six years, 88 at thirteen, 72 in the adult. Tall children exhibit less frequency than short ones; girls, after the fifth year, and more so about puberty, more than boys. The pulse is more rapid in the infant while awake, sitting up, or standing, than while asleep or lying down; more in excitement, exercise, or fever. Thus it is difficult to arrive at a safe estimation of the frequency of the pulse in cases of sickness. In the radial artery it is sometimes impossible to obtain it; the femoral or carotid is often more accessible, the basilar, through the open fontanelle, very much more so. When frequency alone is the object of examination, it is always better not to touch the baby at all. The beats of the fontanelle or the carotid can be distinguished and counted easily, up to a frequency of 240 a minute. But it is not always, or not only the frequency we wish to notice, but the character of the pulse. In the latter respect the young have their peculiarities. The expansion of the artery is very much more perceptible and prolonged than the contraction, and the rhythm is by no means stationary. The pulse is very apt to be irregular, even during the regular respiration of sleep. The slightest deviation from the normal standard of health renders it slightly but perceptibly irregular; anæmia does the same, and either increases or diminishes its frequency. When the latter takes place, the differential diagnosis between anæmia and incipient meningitis, with its pneumogastric irritation, becomes quite difficult.

Quinine Hypodermatically.—De Brurmann and Villejean, in an extended article in the *Bulletin Général de Thérapeutique* of March 15, 1888, report the following formulæ for solutions suitable for the hypodermatic exhibition of quinine.

An aqueous solution:

Quiniæ hydrochlorat.	gr. 15.
Aquæ destillat.	ʒ 3½.
Aquæ lauro-cerasi	ʒ 1.

Dissolve out at gentle heat and filter.

An alcoholic solution:

Quiniæ hydrochlorat.	gr. 15.
Alcohol (60°)	♏ 45.
Aquæ destill.	♏ 90.

A solution in glycerine:

Quiniæ hydrochlorat.	gr. 30.
Aquæ destillat.	ʒ 1.
Glycerin.	ʒ 1.

Dissolve perfectly by warmth.

The Effect of Antipyrin upon the Kidneys.—The *Medical Press* states that at the Société de Thérapeutique M. Huchard recently resumed the discussion on certain indications and counter-indications of antipyrin. If the drug gives incontestable satisfaction in many cases, there are others where it should be employed with precaution, and even rejected entirely. In facial neuralgia, migraine, sciatica, etc., antipyrin is generally very valuable, but it has been proved by recent researches that the quantity of urine is notably diminished under its administration, consequently its counter-indication is evident in certain maladies of the kidneys, and in those affections in which some renal mischief is observed as a concomitant symptom. Again, if in the neuralgic form of

angina pectoris observed in nervous and hysterical persons antipyrin eases the pain, it would be dangerous, on the contrary, to give it in true angina with stenosis of the coronary arteries, collapse of the heart might be the result. However, there is one affection which seems to be greatly benefited by the treatment with antipyrin, and that is polyuria. He had actually under observation a woman who was suffering from meningo-myelitis consecutive to an attack of typhoid fever. This woman drank very large quantities of liquid, so that the urine passed in twenty-four hours exceeded twenty quarts! Antipyrin was given in progressive doses up to two drachms in the twenty-four hours, and the result was a rapid decrease in the amount of urine, until three quarts daily were reached. If he had been so fortunate in this case, M. Huchard said that he had no doubt that his success depended on the fact that his patient was of a very nervous and excitable temperament, with exaggerated reflexes and shooting pains down the vertebral column and along the limbs. The kidneys were in no wise affected.

Dermoid Cyst of the Mediastinum.—At a recent meeting of the Berlin Medical Society, DR. LOEWENMEYER brought forward a tumor of this kind, rather larger than a child's head. It was removed from the body of a man who had been shown to the Society four years previously, his symptoms being then difficult to interpret. Apart from hæmoptysis and a moderate degree of pleuritic effusion on the left side, the attention was chiefly drawn at that time to a projection of the left side of the thorax, with loss of resonance, reaching from the clavicle to the sixth rib. The apex beat could not be felt over the cardiac region, but a thrill was noticed to the right of the sternum, also epigastric pulsation. A precise diagnosis was not made. The patient improved somewhat in hospital, and then went out and worked for a few years regularly, but no symptoms of pressure came on till quite recently, when severe recurring attacks of dyspnœa and cyanosis quickly induced a fatal result. The necropsy revealed a tumor occupying the greater part of the left half of the thorax. Anteriorly it was in contact with the chest wall, having pushed the heart entirely over to the right. Prof. Virchow had examined the tumor, which contained in its interior cysts lined with epithelium and filled with soft substance of gelatinous consistency, but the outer and firmer portion of the tumor was composed of dermoid products, namely, epidermis, hair, fat. Cartilaginous plates were also found. Evidently there had existed abnormality of the chest wall in the embryonal stage of existence of the patient, so that part of the integument had been displaced inward, and part of the respiratory apparatus outward, at the time of closure of the thorax.—*British Medical Journal*, March 17, 1888.

Diabetic Foods.—HARRINGTON, of the Harvard Medical School, publishes in the *Boston Medical and Surgical Journal* of March 22, 1888, the following conclusions, based on an examination of the diabetic foods most commonly sold:

Comparing the estimated figures with the amounts of starch in the two ordinary breads, it is observed that the difference is but slightly in favor of the diabetic breads, whereas, according to the claims made by the manufacturers and retailers, the difference should be overwhelming. But the item of palatability is something to be considered, and the slight difference in the percentage of starch might well be waived in favor of the great difference in taste.

There is another and more serious side to this question of diabetic foods. That they are in the highest degree fraudulent has, I consider, been proved. They are in addition a positive danger, for the diabetic accepting as truth the assertions that they are non-starchy, takes into his system that which even the circulars of the manufacturers admit to be virtually a poison in its effect on the course of the disease, and thus innocently more than counteracts the benefit which he otherwise would derive from his medical adviser. In conclusion, I have to express the hope that every practitioner will do his utmost to discourage the use of these fraudulent and dangerous foods, and to drive them out of the market.

A Pill for Incontinence of Urine.—GRISOLLE prescribes the following:

R.—Ext. nucis vom.	. . . .	gr. 3.
Ferri oxid.	. . . .	gr. 45.
Quassiæ pulv.	. . . .	gr. 45.
Syrup. simpl.	. . . .	q. s.—M.

Ft. pil. 20 in num.

Sig. 1 to 3 pills daily.—*Les Nouveaux Remèdes*, March 8, 1888.

The Treatment of Fissures of the Nipple.—MONTI advises the use of gutta-percha, chloroform, q. s., to dissolve. Excoriations should be covered by a pellicle of the dissolved gutta-percha, which is not removed by nursing.—*Les Nouveaux Remèdes*, No. 4, 1888.

The Practical Use of Haya to Produce Anæsthesia.—The *Medical Press* of March 14, 1888, writes that at a meeting of the Berlin Medical Society KAREWSKI gave an address on the subject. The preparation employed was obtained from Merk, of Darmstadt. Complete anæsthesia was never obtained, but its action was much heightened by the local production of anæmia. Its action was not uniform in all cases. Subcutaneous injection of at least $\frac{1}{25}$ of a grain was necessary to produce analgesia. The analgesic effect of plugging the nares with 0.5 per cent. solution took place after eighteen minutes. It did not act over an area of more than a half an inch above and below the point of injection. The analgesia thus set up sometimes lasted several hours, the length of time being dependent on the size of the dose. The bye effects were very disagreeable, amongst them being violent pain at the point of insertion, coming on in a few minutes afterward, and becoming intolerable and lasting for several days. The results were not encouraging, but in a number of cases of neuralgia some favorable ones were obtained. Two cases of lumbago, one of brachial neuralgia, one of intercostal neuralgia, and one of sciatica, were treated by parenchymatous injections varying from $\frac{1}{150}$ to $\frac{1}{7}$ of a grain. Great pain was produced which lasted for an hour and a half, after which it subsided, and with it the original pain, the latter remaining away twenty-four or more hours, and in some cases permanently.

The Initial Angina of Typhoid Fever.—CADET DE GASSICOURT, in *L'Union Médicale* of March 15, 1888, reports three cases of angina, in whom the quinsy was the first

symptom of typhoid fever. Two of the cases were in children, both were of moderate severity, and terminated in moderately severe typhoid fever; both patients recovered. The third case was a boy, twelve or thirteen years of age, vigorous, and, when first seen, in violent delirium. The pulse was rapid; the skin hot; the submaxillary glands swollen, and the tonsils and soft palate covered with a whitish yellow exudate. While the diagnosis of diphtheria was doubtful, symptoms of typhoid developed, and the patient died on the twenty-fifth day.

The difficulties of diagnosis, especially when the history is unattainable, are very great.

Displacement of the Testicle.—At a recent meeting of the St. Petersburg Society of Russian Practitioners, Prof. Vladimer N. Popoff showed (*Vratch*, No. 4, 1888, p. 75) a unique case of ectopia of the testicle in a patient aged twenty-four. The scrotum was found to be normally developed, with the right testicle in its usual situation; but the left half of the scrotum was empty, while exactly at the root of the penis there was a swelling of the size of a walnut, covered with normal skin, and containing an oval body which measured about four-fifths of the normal testicle, but felt somewhat softer. The patient said the swelling had been there since birth. He had, however, suffered in early childhood from an inguinal hernia, and Prof. Popoff thinks it more likely that the displacement of the testicle developed under the influence of the rupture. The man's sexual power was formerly quite normal, but for about six months he had been impotent. Dr. Popoff could find no similar case in medical literature. Prof. Wenzeslaw L. Gruber, the great Russian anatomist, who takes special interest in anomalies, considered the case unique.—*British Medical Journal*, March 17, 1888.

Ergotin Hypodermatically, for Hemorrhage.—Montard-Martin prescribes the following solution:

Ergotin	gr. 30.
Glycerin.	ʒ 3¾.
Aquæ	ʒ 3¾.

Of this solution from 15 to 25 minims may be injected. —*Les Nouveaux Remèdes*, March 8, 1888.

When should Antipyrin be Given?—The *Medical Press*, of March 14, 1888, furnishes timely information on this point, as follows:

Antipyrin should be administered with or immediately after a meal, otherwise pain, nausea, and discomfort, may result from its contact with the walls of the stomach. The cutaneous manifestations which sometimes follow its ingestion are probably due to vaso-motor disturbances characterized by peripheral dilatation of the arterioles. In certain cases the rash has simulated that of scarlatina, with intense itching. There is every reason to suspect that in consequence of the present great demand for the drug, due care may not be employed in its manufacture, and it is suggested that an analysis should be ordered whenever toxic symptoms are observed. Dr. Dujardin-Beaumetz claims to have detected a mixture of benzine in certain samples, the presence of which would explain many untoward effects. It should be borne in mind, especially by the public, that we have in antipyrin a useful but potent agent, the use of which in unskilled hands may and will in a certain proportion of cases give rise to severe and even fatal symptoms. Manufacturers would also do well to look a little more closely to the purity of the drug, otherwise it may fall into discredit.

***Calycanthus glaucus* (*Carolina Allspice*).**—Eccles writes, in the *Brooklyn Medical Journal* for March, 1888, that the shrub within whose seeds he discovered the alkaloid, was during the late civil war used in decoction of roots, leaves, and bark by the Confederate soldiers for the cure of intermittent fever, and, as claimed, with success. It is still used in domestic practice by the natives of the region where it grows. A fluid extract of an allied species is already upon the market, so that somewhere in the country it is being prescribed for some purpose. If in its crude form it has proven of advantage, this new concentrated form should be still more efficient. The seeds contain nearly two per cent. of this alkaloid, and a smaller amount of probably two others. The odor of the volatile one of these last is distinctly that of pyridine, an alkaloid of tobacco, and as it is unlikely that two should exist having the same smell, we may at present assume it as probably such.

Antifebrin in Epilepsy.—Borosnyoi is quoted by the *Centralblatt für die gesammte Therapie* for March, 1888, in his report of the results obtained by using antifebrin in the treatment of epilepsy. He treated nine epileptics with the remedy in doses ranging from three and a half to thirty grains. It was found necessary to intermit the treatment by pauses. His conclusions are that antifebrin is inferior to the bromides in the treatment of epilepsy; cases of collapse and cyanosis were observed during the treatment. Large doses of antifebrin control epileptic paroxysms, but are too depressing to be continued.

Sulphurous Inhalations for Phthisis.—A series of observations has recently been made on a method of treating pulmonary tuberculosis, which, if not curative, would appear to possess a beneficial power over the progress of this dread malady. The method consists in the systematic inhalation of an atmosphere impregnated with the fumes of sulphurous anhydride (SO_2); and several ingenious plans of obtaining a constant supply of the gas have been devised, the best of which is a lamp constructed to burn bisulphide of carbon. The simple plan of burning flowers of sulphur in a closed room can, however, be resorted to if desired. Under its influence, it is said, the expectoration becomes more liquid, the mucous surfaces are relieved from the irritation caused by the presence of muco-purulent secretions, and the patient is spared the fatigue of violent paroxysms of cough. In a certain number of favorable cases the improvement in the general health which follows, is reported to be sufficient to allow of the cicatrization of cavities, and the subsidence of the more disquieting symptoms. The irritating effects of the vapor may be mitigated to some extent by burning opium and gum benzoin at the same time. Some two hundred observations have already been recorded, and the results have been sufficiently good to warrrant a more general trial. Caution is advisable in the quantity of the gas, which should not exceed a certain proportion, which must be ascertained by close supervision of the patient during its administration.—*British Medical Journal*, March 17, 1888.

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SATURDAY, APRIL 7, 1888.

THE RELATION OF THE ACIDITY OF THE GASTRIC JUICE TO THE DIAGNOSIS AND TREATMENT OF DISORDERS OF THE STOMACH.

DIFFERENT opinions concerning the nature of the acid to which the gastric juice owes its reaction have prevailed since the days of Blondlot and Bernard. Variously regarded at different periods by men of the highest attainments in chemistry and physiology, as phosphoric, sarcolactic, lactic, and hydrochloric, the discussion is now limited to the two last named substances; and, with reference to these, the latest researches have proved that either may be present alone, or both in combination. During the first half hour of normal digestion, lactic acid is found alone; then follows a stage in which it is in company with hydrochloric; finally comes a period—the longest and most active—in which the latter is the only acid present.

To determine the digestive power of the stomach, its secretion should not be removed for examination until at least three-quarters of an hour after the ingestion of food—that is, during what has been called the hydrochloric acid stage. The object of the examination is to determine, first, the presence or absence of hydrochloric acid; secondly, its amount. The tests employed for this purpose are too numerous to describe at length here. As in examining urine for sugar or albumin, so here each observer comes to rely upon that method with which he has had the greatest experience. The latest test for hydrochloric acid in the gastric secretion is the phloroglucin-vanillin test devised by Günzburg, of Frankfort, of which a full description was given in THE NEWS of January 14, 1888. Concerning this test, Ewald declares that it is the best and most exact of any yet employed, and there is little doubt that with this, and the well-known methyl-violet test, the investigator will be fully equipped.

The practical results that have thus far been derived from these clinical applications of chemistry are interesting and valuable. The first examinations of the contents of the stomach led to the belief that hydrochloric acid was invariably absent in cancer of that organ, and this supposed fact was eagerly welcomed as a sure means of determining or excluding carcinoma. From a careful study of five cases, in which he made 154 examinations of the gastric juice, Riegel concluded that, as a rule, the gastric juice of a cancerous stomach contains no hydrochloric acid, and is devoid of digestive power, and that, on the other hand, when these are present in a specimen, cancer may be excluded in spite of the most positive symptoms of that disease. The case, however, is not so simple, for free hydrochloric acid is not only absent in other non-cancerous forms of dyspepsia, but has been found in several undoubted cases of carcinoma, in one of which (referred to by Petit, *Gazette Hebdomadaire*, February 10, 17, and 24, 1888) it persisted until death. Seé, who has recently studied this question with the aid of Günzburg's test, concludes that the diseases which reduce the hydrochloric acid to a minimum are cancer of the stomach, with or without dilatation; atrophy, and amyloid degeneration of the mucosa; and certain forms of dyspepsia known as mucous, which result from inanition and marasmus. These are, unfortunately, just the conditions that are most apt to simulate cancer, so that the conviction is forced upon us that too great a significance has been attached to the absence of hydrochloric acid in carcinoma of the stomach. It is still, however, justly regarded as a valuable corroborative symptom in latent forms of that disease.

The opposite condition of hypersecretion is a well-recognized morbid entity, and has been already discussed at some length in THE MEDICAL NEWS of October 1, 1887. Physiologists have established the fact that pepsin displays its greatest digestive power in gastric juice containing a certain proportion of hydrochloric acid, about 2 per 1000. When the acid exceeds or falls below this amount, the digestive power of the secretion is impaired, and, apparently,

in equal degree: that is to say, in a neutral, as well as in an excessively acid secretion, digestive power is entirely absent.

Hyperacidity has been frequently observed in pregnant women with repeated vomiting, in diabetes, in certain cases of dilatation of the stomach, and in chlorotic girls. Its presence in the latter class is quite significant, for hyperacidity is known to predispose to gastric ulcer, which had been observed to be common in cases of chlorosis before the state of the gastric secretion in that disease had been investigated.

The practical question with reference to the chemical examination of the stomach contents is whether it has added to our therapeutic resources. This question may be positively answered in the affirmative. Acids and alkalies formerly administered almost at random, may now be prescribed with mathematical certainty. It has been proved by these researches, for example, that dilute hydrochloric acid which has been fitfully prescribed in typhoid fever, meets a real indication; for in febrile conditions this acid is much diminished. In cancer of the stomach the indications for its administration would seem to be equally prominent. Opinions, however, are divided as to its efficacy. Sée considers it absolutely useless in this disease, since the gastric juice is devoid of pepsin as well as of acid. On the other hand, Petit mentions having seen a case of gastric cancer in which all the digestive troubles disappeared after the administration of hydrochloric acid, with consequent improvement in the general nutrition.

The condition of hyperacidity furnishes more decided indications for treatment. The condition once recognized, the exhibition of alkalies follows, as a matter of course, but does not, as a matter of course, succeed. Failure often depends upon the administration of too small a dose. If not, it should be generally known that small doses of an alkali will actually increase the acidity of the gastric juice, and will, therefore, in cases of hyperacidity act the part of fuel to a fire. On the other hand, large doses not only always relieve the immediate symptoms, but will often exert a permanent curative effect.

CONTRAINDICATIONS AND DANGERS OF ANTIPYRIN.

Of the numerous recent additions to our materia medica, antipyrin appears to have come into most general use, and to have a very wide range of usefulness. But its administration appears, upon further study, to be not without contraindications and dangers. Eloy, in the *Revue Générale de Clinique et de Thérapeutique* of March 1, 1888, points out that a large number of ailments are frequently produced by it, particularly if given for any length of time.

He quotes Guttmann, Falkenheim, Alexander, and others, in support of his statement that nausea, vomiting, and gastro-intestinal disorders may result from its use. Beside these symptoms, he records instances where syncope has occurred under its employment, and Bentzeff is quoted as believing that the drug always produces such a tendency. He asserts that, in the opinion of Moncovor, Dujardin-Beaumetz, and several others, the secretion of urine is seriously modified, and one of his references is stated to have put it that "antipyrin closes or shuts up the kidneys."

Going still further, Eloy calls attention to the case of Dr. Barr, which is recorded in the *Lancet* of February 25, 1885, in which collapse and death followed the ingestion of from fifteen to thirty grains of antipyrin in two doses. In a case of puerperal fever, antipyrin caused a fall of over two and a half degrees Centigrade, with vomiting and diarrhœa. Rigors now came on, the extremities became livid, and in thirty-two hours the patient died in syncope. At the autopsy the spleen was found contracted, the kidneys were shrunken, and contained infarcts. A large number of instances were also collected, in which antipyrin has apparently, in the minds of the recorders, produced disorders so varied and so different from one another that it is scarcely possible for them all to be produced by the same drug.

It appears to us that Eloy is not justified by the facts he cites in reaching the conclusions as to the dangers of the drug which he sets forth. In the case of puerperal fever to which he alludes, nothing occurred which warrants the attributing of the fatal termination to the use of antipyrin, and the post-mortem lesions indeed point to the disease itself as the cause of death, without any aid from the drug.

We think it but a fair conclusion that antipyrin is in no sense a dangerous remedy, and that as yet there are no cases in which death can be attributed directly to its use. All untoward symptoms, clearly produced by any drug, should be reported, but at present the tendency seems to exist of reporting any unforeseen turn in a case as the effect of the drug last administered. Undoubtedly the differentiation is at times difficult, as to whether the symptoms are

of the illness or the drug, but every disease runs at times such an irregular course that the careful clinician thinks twice before charging a drug with a change which his own foresight or care might have averted, or at least expected.

WEIL'S DISEASE.

A FEW years ago PROFESSOR WEIL described a new infectious disease characterized by fever, headache, gastric disorder, jaundice, and pains in the muscles. In the *Deutsches Archiv für klin. Medicin* there have been four or five articles on the subject during the past five years, and in the current number Fiedler, of Dresden, records thirteen cases, and discusses fully the general characters and diagnosis of the disease. The onset of the affection is sudden, without prodromata, and often with a chill. The characteristic symptoms are those above mentioned. The fever runs a typical course, and lasts from eight to ten days. The liver and spleen are usually swollen, and the former is tender. Nephritis often occurs, and herpes and erythema have been present. The cases so far have been chiefly in men, and nine of Fiedler's patients were butchers. The prognosis is favorable. The cause of the disease is unknown, but the fact that dealers in meats form such a large proportion of the cases suggests the direction in which the poison is to be sought. Fiedler discusses the diagnosis, particularly from abortive typhoid, and concludes that it is an affection *sui generis*. It is quite possible that the affection may prove to be a form of chronic ptomaine poisoning.

THE Thirty-ninth Annual Meeting of the American Medical Association will be held at Cincinnati, on May 8th, 9th, 10th, and 11th, under the presidency of Dr. A. Y. P. Garnett, of Washington. The Address in Medicine will be delivered by Dr. Roberts Bartholow, of Philadelphia; the Address in Surgery by Dr. E. M. Moore, of Rochester; and the Address in State Medicine by Dr. H. P. Walcott, of Cambridge, Mass.

The general sessions will be held in the Music Hall, and the sectional meetings in adjoining rooms in the same building. The present indications point to a large meeting.

THE next annual meeting of the South Carolina Medical Association will be held in Columbia, S. C., on Wednesday, April 11, 1888, under the presidency of Dr. T. Grange Simons, of Charleston.

DR. ROBERTS BARTHOLOW, of Philadelphia, we learn, has been elected an Honorary Member of the Royal Medical Society of Edinburgh.

DR. JOSEPH TABER JOHNSON, who has heretofore held the position of Professor of Obstetrics and Gynecology in the Medical Department of Georgetown University, having resigned the Professorship of Obstetrics, the chair has been divided into two separate professorships, Dr. Johnson retaining that of Gynecology, and Dr. P. J. Murphy has been appointed Professor of Obstetrics.

DR. OLIVER WENDELL HOLMES has presented his valuable medical library to the Boston Medical Library Association.

THE New York County Medical Society caused the arrest of an Italian shoemaker for practising medicine without a diploma. At his trial the cobbler entered the plea that he had used no medicines, but simply used charms which had been taught him in Italy, to cure people of witchcraft. His deluded countrymen had to pay roundly for his services whenever they went to him to have the spells of witchcraft lifted from them. He was fined fifty dollars, and he said with a sigh that he would hereafter "stick to his last."

DRS. SAYRE and LUSK, of New York, have been proposed as corresponding members of the Academie de Médecine de Paris.

IN an editorial in the *British Medical Journal* of February 25th, on the "Birthplace of Consumption," we find the newly coined verb "to sanitate." The innovation will be welcome to all who have to write upon questions of public hygiene: the evolution of modern civilization makes necessary such additions to our vocabulary.

BUN-POISONING is reported from Belfast, Ireland. A number of children and adults in the workhouse of that town showed symptoms of poisoning after partaking of buns. The medical officer found twenty-three children on the floor vomiting, and some of them screaming. Ten adults had to be removed to the hospital, but all have recovered. An analysis of the remaining buns has been ordered by the authorities.

PROFESSOR NICHOLAS SENN has been appointed Professor of the Principles of Surgery and Surgical Pathology in the Rush Medical College, Chicago.

REVIEWS.

Diseases of the Heart and Circulation in Infancy and Adolescence. By John M. Keating, M.D., and William A. Edwards, M.D. Philadelphia: P. Blakiston, Son, & Co., 1888.

The reprinting of the articles on this subject which have run through the numbers of the *Archives of Pediatrics* for the past year will enable the profession to obtain in book form that which they might otherwise have obtained by a subscription to the journal itself, if this is any advantage.

The work of collecting the cases from the literature of the subject must have been most laborious, but we doubt very much whether the present volume fulfils the want which it is supposed to fill—*i. e.*, the information on this subject which the text-books lack.

The printing is clear and well done, and the photographs which are scattered here and there are well executed but almost entirely useless, rather by reason of the difficulty which always surrounds the photographing of pathological specimens than from any lack of skill on the part of the pathologist or artist. Unless each one of them was labelled, we think it would puzzle the average physician to tell what they are supposed to represent.

SOCIETY PROCEEDINGS.

PHILADELPHIA ACADEMY OF SURGERY.

Stated Meeting, March 5, 1888.

The President, D. Hayes Agnew, M.D., in the Chair.

Dr. De Forrest Willard reported the following case of

SQUAMOUS EPITHELIOMA OF PENIS; AMPUTATION.

A. B., seventy, has had slight burning sensation in the glans penis for nearly two years, but no decided lesion until six months ago, it then ulcerated, and was treated for several month as gonorrhœa and warts, although there had been no sexual congress, other than with his wife.

On examination at first visit to me, a growth nine inches in circumference was found involving the entire glans, which had nearly disappeared. Prepuce not involved, save in the dense induration, which also extended through body of penis almost to the trunk. Whole surface covered with foul pus, and from several points pus was also exuding from corpora cavernosa. Urination painful and difficult. Anterior part of urethra destroyed. No involvement of inguinal or other discernible glands.

Immediate amputation by the knife was performed, close to the trunk, a rubber band controlling all hemorrhage. Arteries tied with catgut, the slit urethra firmly attached to sheath, and skin and parts drawn nicely over the stump. Antiseptic dressings applied, and no catheter used; the parts being thoroughly washed with sublimate solution after each act of urination, and fresh dressings adjusted. Union took place in a few days, and contraction of cicatrix at orifice of the urethra was prevented by use of a silver tube worn while in bed. Subsequently the urine was carried off from the body, when passed, by applying over the stump each time a cylindrical rubber vaginal speculum. The microscope showed the growth to be of the squamous type. Each corpus contained one or two pus cavities.

The growth will probably return, but an offensive mass is removed, and the next deposit may be intra-pelvic, with a less painful and disgusting death.

Dr. William Hunt had seen a good many cases of amputation of the penis, but did not recall an instance in which it was necessary to make use of any contrivance for easier urination, or to prevent adhesions, except during the first part of the treatment. It is possible that trouble may have occurred after the patient left the hospital, but he could not recall one coming back to be treated. Cases of penis amputation for epithelioma are very unlikely to have *local* return of the disease, although this does sometimes happen.

Dr. Gross thought that any surgeon who has operated on many cases of epithelioma of the penis, will find that even if there be no local recurrence, the glands in the groin will, in the majority of cases, be invaded.

The President said that the question then arises as to the proper method of dealing with the inguinal glands in these cases. Would it not be as important to remove these glands in cases of epithelioma of the penis as to remove the axillary glands in cases of carcinoma of the mamma?

Dr. Gross thought that the importance of this is recognized more particularly by the German surgeons, who are certainly more in advance of the surgeons of other nations as regards the extent of operation that should be performed in carcinoma. They remove the glands in the groin. There are many cases, however, in which, although the superficial glands be removed, the deep glands in the pelvis will be found involved. This is more apt to be the case when the glands in the groins form a large mass rather than a distinct enlargement of the separate glands. In many cases the glandular involvement has gone so far that operation is out of the question.

Dr. W. W. Keen read a paper on

THE RADICAL CURE OF HYDROCELE BY EXCISION OF THE TUNICA VAGINALIS TESTIS.

(See page 371.)

Dr. Gross said that he was the author of the article in The Medical News to which Dr. Keen had referred. Since he wrote that paper he had, from time to time, noted some other points in regard to operations for hydrocele, which may be of interest. Some years ago, Dr. Allis made statements to this body which surprised the most of his hearers, concerning the various methods of treatment of hydrocele, and he showed that none was absolutely safe, not even that of the injection of various mixtures and solutions. The records of a larger number of cases show that the conclusion of Dr. Keen with reference to excision is correct.

He might correct him as regards the first excision of the vaginal tunic. The history of the operation is briefly as follows. In 1873 Volkmann resorted to incision of the tunica vaginalis, with drainage and suture of the edges of the tunica vaginalis to the edges of the scrotum. In 1878 he incised the tunica vaginalis, united it with sutures, and also passed deep sutures, bringing the surfaces of the tunica vaginalis together. In 1882 he excised a large portion of the vaginal tunic, sutured the remainder with

gut, and united the scrotum with silk, putting in two drains. He was, therefore, the first to excise, as he was the first to incise. Juillard, of Geneva, in 1883, excised all of the vaginal tunic except a sufficient portion of the parietal layer to bring over the testis and epididymis, and thus shut up the testis in a smaller sac of the tunica vaginalis. He inserted a drain in the scrotal cavity, and united the scrotum with catgut. Nicaise strips off the tunica vaginalis, saving enough to cover in the testis, and uniting this with catgut he puts in a small drain. He then unites the scrotal wound and puts in a second drain. A year or two ago, the speaker himself excised the tunica vaginalis, and then approximated the sides of the scrotum with the figure-of-eight suture of Heppner.

Now a word with reference to statistics. He had collated 540 cases of iodine injection from the records of later years, particularly by German surgeons. There have been no deaths, but there was recurrence in 8.15 per cent., and acute suppuration or gangrene in 1.66 per cent. Of 90 cases of carbolic acid injection, all were successful. In three cases, however, there was suppuration, but in all from one to three drachms of carbolic acid had been used. Still smaller quantities may, moreover, give rise to suppuration. He had seen, in the practice of a colleague, suppuration follow the injection of half a drachm into the left side of the scrotum, and Abbe has had suppuration follow the injection of only twelve minims. The percentage of suppuration after carbolic acid injection, 3.33 per cent., has been greater than after the injection of iodine. In 305 cases of antiseptic incision there was recurrence in 4, and he believed that that was the reason that Volkmann resorted to excision. There were also 4 deaths, 1 from pyæmia, 1 from septicæmia, 1 from tetanus, and one was said to have died of phthisis. It may be remarked that every one of these cases died under the carbolic acid dressing. There has been no death reported, so far as he knew, from incision since the use of corrosive sublimate dressing. As Dr. Keen had remarked, there is frequently in these cases of Volkmann's operation, orchitis, occasionally abscess, and partial sloughing of the edges of the wound. We now come to the 78 excisions; of these one recurred but none died, and there were no subsequent complications, so that in reality the safest and most satisfactory method of treating hydrocele reported up to the present time is excision of the sac. It may be that there has not been a sufficient number of cases, but the fact that there has been only one recurrence and no deaths or accidents, would indicate that in suitable cases this is a proper operation.

In an ordinary hydrocele, he should not at once resort to excision. In the case of a hydrocele containing, for example, eight ounces, he should empty the sac, and when it had refilled one-third, inject some solution, as there would then be less surface to be acted upon. In a case that has never been operated upon he empties the sac and tells the patient to return when it has refilled one-third. He then throws in thirty drops of ninety-five per cent. commercial carbolic acid. If the patient has had injection practised, and particularly if the operation has been repeated several times, he thinks that we should at once proceed to open the sac. In these cases we will find that the vaginal tunic and the fibrous tissue under it have undergone changes. The vaginal coat is not only thickened and ecchymosed in spots, but in places it has undergone cartilaginous degeneration, and is frequently beset with cysts or other abnormal products.

He has great confidence in the treatment of hydrocele with carbolic acid. He has practised it for some years and has never had a failure from it nor has he seen any bad results, although, as he had stated, one of his colleagues had a case in which suppuration followed its use, but this must be attributed to infection by the instrument.

DR. J. EWING MEARS was not aware that the method of treating hydrocele by excision of the tunica vaginalis was so recently instituted. He performed it himself in 1876, not knowing that it had been so rarely undertaken. This was in a case of old hydrocele which had been operated on a number of times. The tunica vaginalis and the subjacent tissue were much thickened, and there was also atrophy of the testicle. He not only removed the tunica vaginalis, but also the atrophied testicle, which was not larger than an almond. The wound was dressed antiseptically, and the patient recovered without a bad symptom.

He thought Dr. Gross had indicated the proper method of treating these cases, and that all are agreed that in simple hydrocele, not previously operated upon, the injection of some fluid—Dr. Gross suggests carbolic acid, he had used iodine with success—is the proper plan. He injects the iodine after the method suggested by the President, evacuating the contents of the hydrocele, then injecting the iodine and allowing it to remain. He has never had any unfavorable symptoms follow its injection in this way, nor the persistence of severe pain, as stated by Dr. Gross. He thought that it is the operation most likely to succeed in simple cases. In old cases of hydrocele with thickening of the tunica vaginalis, there is no doubt that excision is the only remedy that will give a radical cure.

DR. GROSS said that excision is not the only remedy that will bring about a cure when the tunica vaginalis is thickened. The first case in which he did Volkmann's operation was one in which there were patches of cartilage in the vaginal tunic. He did not excise it, but the cartilage reverted to embryonic tissue and disappeared. The only disadvantage was that the cure was protracted. It was about three weeks before the incision had healed. Of course, excision is the best, although not the only operation in these cases.

DR. JAMES M. BARTON referred to a method which he had been using with considerable satisfaction for the past three or four years. He had met with a number of cases of hydrocele which had resisted treatment. It was formerly the method in Jefferson College Hospital to treat these cases with a seton. This was often followed by unpleasant results. Finding that these were, to a large extent, due to insufficient drainage, he began by introducing a drainage tube at the lower opening at the time of operation, subsequently substituting a drainage tube for the seton. This answered well, and he thought was still further improved by making the operation antiseptic. He had treated ten cases in this way with success. The parts are scrubbed with turpentine, water, etc., on the day before the operation, and covered with a piece of cheese-cloth saturated with a solution of the bichloride of mercury. Over this is placed a piece of rubber cloth, a hole being made for the penis, and the dressing held in position by adhesive plaster. The following day the trocar and canula is entered at the lowest possible point, the

sac emptied, and the instrument brought out at the highest point. A drainage tube, somewhat larger than the canula, is carried through, the tube being stretched to reduce its calibre. The parts are then covered with antiseptic gauze. In the course of from two to four days, lymph will appear around the tube, forming a mass about one inch in diameter. At the expiration of the above time the tube is removed, and the patient allowed to go about. He had in most cases succeeded without inducing suppuration. In one or two cases there has been slight suppuration, but the only disadvantage resulting from this has seemed to be the delay in recovery.

Dr. Keen desired to correct one error into which Dr. Gross had fallen. He stated that there had been no deaths since the bichloride of mercury had been introduced. Dr. Bull has reported one case of death from mercuric poisoning after Volkmann's operation. He was glad to see the general impression with reference to the difference in danger between complete excision and the incision of Volkmann. Certain it is that the method by incision is not by any means so radical, so devoid of danger, or so philosophical as the entire removal of the tunica vaginalis, with the exception of that portion covering the testicle and cord. He agreed with those who had spoken that excision is the best treatment for cases of old hydrocele which have been repeatedly operated upon; and from his experience with the methods of injection which are followed by so much of induration, of swelling, of weight, of inflammation, and of pain, he was very decidedly inclined, even in cases of recent hydrocele, to practise extirpation of the tunica vaginalis. It is well known how aseptic and non-inflammatory the course of such wounds is. It seemed to him that we should have much better results in the future than we have had from carbolic acid injections in the past.

Dr. William Hunt asked if there had been any observations with reference to the behavior of the testicle after successful excision of the sac for hydrocele. It has been well established that in the ordinary operation the cure is not due to the adhesion of the two sides of the sac, but to an alterative action exerted by the injected solution upon the membrane. Now, after the sac has gone, does the testicle adhere to the connective tissue, and become restricted in its movements, or is a lubricating surface or pseudo-cyst formed around it?

Dr. Willard asked if the contraction might not destroy the functional activity of the organ?

Dr. Keen was not aware of any observations upon these points. He took it for granted that there would be complete adhesion between the two surfaces. He thought that no contraction would take place, and that the function of the organ would not be interfered with.

Dr. Gross said that, going back to the subject of injections, the reason that he adopted carbolic acid was, because it is followed by so little inconvenience. After throwing in thirty drops of commercial carbolic acid the pain ceases in a minute or two. Tincture of iodine, or any of the preparations of iodine, on the other hand, causes excessive suffering which may last for hours.

Dr. J. Henry C. Simes said that he had used injections of cocaine previous to the injection of iodine, and found it very satisfactory in preventing pain.

Dr. D. Hayes Agnew still adhered to tincture of iodine, but occasionally used carbolic acid. He thought that we cannot tie ourselves down to any one method of treatment. In most cases iodine or carbolic acid will answer. He still preferred tincture of iodine, but where there are extensive changes in the sac it is proper to excise. With reference to the pain following the injection of iodine, his experience does not agree with that of Dr. Gross. The suffering is intense for two or three minutes, certainly not more than five or ten minutes. He keeps the patient quiet for five or six days, after which he is allowed to go about with a suspensory bandage. He thought that we cannot draw conclusions with regard to the value of iodine injections from statistics, because iodine is used in such a variety of ways. Some dilute it, while others allow it to escape immediately. To make a success, pure tincture of iodine must be thrown in (never less than two drachms) and allowed to remain.

Dr. Willard had not seen long-continued pain follow the injection of tincture of iodine. He had seen it continue two hours, but usually not longer than from ten to thirty minutes.

MULTIPLE FRACTURE.

Dr. Hunt wished to refer to a case, and his object in doing so is to put it on record. It is a curious one of multiple fracture. A man, forty-one years of age, came into the Pennsylvania Hospital after falling a distance of ten or fifteen feet striking the cobbles. The injuries were confined to the right arm. There was a fracture through the neck of the humerus and dislocation of the head of the bone, which was reduced; there was a fracture of the olecranon and a Colles's fracture.

Dr. Packard thought that this was an unique case. The man has been in the hospital about two weeks and there is nothing remarkable in the progress of the case. What forces caused the combination of injuries without breaking the shafts of the bones anywhere, is hard to determine. For a man to break the same limb at all three main joints at the same time, is certainly a very rare occurrence.

NEW YORK ACADEMY OF MEDICINE.

Section on Orthopædic Surgery.

Stated Meeting, March 16, 1888.

V. P. Gibney, M.D., in the Chair.

Dr. Samuel Ketch read a paper on

THE PRESENT STATUS OF THE TREATMENT OF ROTARY LATERAL CURVATURE OF THE SPINE.

This condition, he said he felt sure, had given rise to more theories and, as a result of these, more ingenuity in the means devised for the relief of a deformity presenting greater obstacles to success, than any other encountered by the orthopædic surgeon. In speaking of rotary lateral curvature of the spine he wished emphatically to be understood as referring here to only typical cases, and he defined such rotary lateral curvature to be that lateral deviation of a portion or whole of the vertebral column which shows as its most constant factor the rotation, torsion, or twisting of the bodies or segments of bodies of the vertebræ, with accompanying or consecutive alterations in the shape of the thorax. No deformity with which we are brought in contact exhibits in its slow, insidious progression, in its involvement of area, in its secondary effects on important internal organs, so decided alterations of form, and such marked disturb-

ances of function, as this. When it becomes recognized that the condition we have to deal with is but the effect of some cause, some irritation in fact, the exact nature of which is as yet unknown, it will be seen that the problem of treatment embraces something more than the attempt to remove the mechanical results of such cause by the use of opposing mechanical means.

The present treatment of the disease consists principally of two methods, or a combination of the two, viz., by apparatus and by exercises, or by the conjoined use of both. Dr. Ketch did not think it necessary to speak in detail of the treatment by complete recumbency or that by cutting of spinal muscles (tenotomy), although both plans, he thought, might be useful adjuncts at times. He went on to say that at the present day apparatus for the relief of lateral curvature might be described under two varieties, progressive and fixative. He strongly condemned treatment by the constant action of cumbersome and heavy instruments which by their abnormal pressure often give rise to large excoriations, and even sloughs of the skin. In his opinion no lever brace should be used for any other purpose than simply that of retaining the spine in an improved position previously obtained either by appropriate manual exercises or combined manual and gymnastic movements. Such braces should be light, easily removable, to allow of inspection of the parts, and simple enough to be easily applied by those having the home care of the case.

The second class, or fixation apparatus, were originally constructed with the idea of firmly immobilizing the distorted spine in an improved position, obtained by suspending or extending the patient. This original plan has been modified to the extent of opening the brace in front, whether constructed of plaster-of-Paris, poroplastic felt, leather, or other substance, with the object of easy removal, in order to allow proper exercises and give attention to the subjacent parts.

In regard to the matter of exercises he said that he attached most importance to those which have for their object the "unfolding" of the twisted vertebral column. These can be applied with the greatest precision and benefit by means of the surgeon's hands. The importance of manual force has not been overlooked by surgeons in their attempts to relieve deformity, and no appliance can rival the ease, proper application of pressure, and safety which manual exercises afford. Their success, however, depends on detail, and they should be given either by the surgeon himself or a thoroughly trained assistant.

As to what is meant by a cure, Dr. Ketch said that to his mind this would involve not only the restoration of the lateral deviation, with its normal curves, but also the disappearance of that most constant factor of the deformity, the rotation. As generally understood, however, this implies either the prevention of further deformity or an amelioration of the condition as originally observed. In the cases observed by him he has never been able to convince himself of the entire disappearance of rotation, while he believes it to be essential that this symptom should be prevented or removed before a vertebral column can be considered as restored to a perfectly normal state. To the question, Are we able at the present day to remove this rotation? he felt compelled, then, to answer in the negative. He then took up the question, Are there any means by which we can more fully accomplish our ends? In the way of apparatus, he said, there is nothing new, for all apparatus finds its efficiency in the proper application of mechanical laws. In the way of prevention, however, a great deal can be accomplished. It is only by the earliest recognition of the symptoms and an appreciation of their importance that prophylaxis can be accomplished. He then referred to a paper which he read two years ago before the Section on lateral curvature, with special reference to its occurrence in children. It was based on an analysis of 229 cases presenting the typical deformity in question, and he divided these cases into three classes, as follows:

1. Those where the deformity was first observed from the first to the twelfth year, or the age of childhood.

2. Those where the deformity was first observed from the twelfth to the eighteenth year, or the age of puberty.

3. Those where the deformity was first observed from the eighteenth year and upward, or the age of complete development.

During the period of childhood the deformity occurred in 120 cases, or over one-half of the whole number, and among the conclusions at which he had arrived in the paper were the following:

1. Rotary lateral curvature is principally a disease of childhood, and may be either congenital or acquired.

2. The disease should be looked for early in life, and as a factor in early treatment the careful inspection of children's spines becomes most important toward the prevention of the deformity.

He did not mean to say that even were the spines of young children to receive the utmost care, and at the first suspicion of a deformity the child was taken to a surgeon, that we should not have lateral curvatures; but he felt convinced that the inveterate deformities now seen in so large a number would be few and far between.

Dr. A. N. Phelps said that in lateral curvature of the spine, if there were changes in the bone, no apparatus or gymnastic exercises would correct the deformity. It was, however, of advantage to suspend the patient, and, having got him into the best possible position, to secure this permanently by some fixed apparatus. He believed Stillman's brace to be the most satisfactory steel instrument that had been devised; but, so far as his experience went, he had found that the plaster-of-Paris jacket was by far the best appliance at the command of the surgeon. He thought that compensating curves could be maintained which would be of service in mitigating the deformity.

Dr. A. B. Judson believed that mechanical treatment which involved strong lateral pressure on the ribs, would increase, rather than reduce, the rotation and curvature. If we could invade the cavities of the chest and abdomen, and make lateral pressure on the errant vertebral bodies, it would be easy by direct force to correct at one motion both the curvature and the rotation. His views of treatment were based on the importance of placing the patient as often, and for as long a time as practicable, in those positions in which the deformity was diminished or entirely reduced, so that, as the patient's frame developed, the skeleton might grow and harden with as little deformity as may be. As the superincumbent weight is the direct cause of the curvature, and as the deformity disappears in mild cases when the patient lies down, the recumbent position should be maintained at least two or three hours in the middle of the day. And if general debility, or fatigue, or muscular failure is to be

considered the indirect or remote cause of the affection, something might be gained in this direction by the prescribed recumbency as well as by encouraging the patient to avoid fatiguing tasks, and to lie down whenever so disposed. Again, when the patient is lying down he considered it advisable that he should remain on his back, and not only on his back, but in such a position that a lordosis is produced. This was accomplished by placing an air pillow, blown up to its full extent, under the spine. The reason for this is, perhaps, a little theoretical. In the rotation of the spinal column it is clear that the anterior portion of the vertebræ is the most at fault. The same is true in Pott's disease, the disease being located in the anterior portion of the vertebræ, and, therefore, in Pott's disease also, is produced a lordosis, if possible. We remove the pressure from the anterior part of the vertebræ to the posterior.

Another very useful position was that in which the weight of the body is suspended by the upper extremities. It is well known that even in cases in which the deformity is marked the curvature and rotation absolutely disappear when this attitude is taken. He referred to the theory of Dr. Henry G. Davis, who pointed out that in this position the chest is directly and forcibly enlarged by the fixation of the anterior ends of the ribs, which are connected by the fibres of the pectoral muscles with the humerus, while the posterior ends of the ribs are dragged down by the weight of the lower part of the body. Suspension may be practised by the rope and pulley, the suspension bar, the parallel bars, the overhead ladder, or the suspended rings. As much exercise of this kind as is possible should be taken short of fatigue, with the threefold object of maintaining an improved position of the spine, of increasing the capacity of the chest, and thus indirectly combating rotation, which narrows the chest, and of securing the improvement in general health and strength which naturally goes with improved respiration. He did not believe that the cases of extreme deformity, which are so common, could be materially improved in shape, but some cases of moderate severity can be entirely restored to symmetry. He had never seen a case pass from the moderate to the extreme type of deformity.

Dr. Reginald H. Sayre agreed most thoroughly with Dr. Ketch, in saying that preventive rather than curative treatment is what we must aim at in lateral curvature. He also bore out his observations as to occurrence in early life, having seen one case where the curvature is said to have been present at birth, another where it was noticed at six months, and having personally seen a case in a child two months old.

As for getting a perfect restoration to the normal form, he believed it to be possible only in cases where there is but very slight rotation, cases which present considerable rotation and curving of the ribs he believed can never be restored completely to the natural shape. They may, however, be benefited, and he had been surprised to see the amount of improvement attainable in very advanced and, at first sight, apparently hopeless cases.

If possible, he would treat a case by gymnastics and massage alone, with the object of educating the muscles of the patient and enabling him to retain such improvement of position as he could make by manipulation, and exercises, which, being different in various cases, would require too much time to be described here.

If a case is sufficiently distorted to require also mechanical support, or if it is necessary, on account of paralysis, he should use a plaster-of-Paris corset, as he has never seen a case which became worse under this mode of treatment, and he has seen a number of most frightful distortions occur under instruments of various kinds, applied while the deformity was very slight, as attested not only by the testimony of the parents, but by photographs taken at the time of beginning treatment; and as this result has followed instrumental treatment in the hands of various physicians of large experience, with patients whom he has found most obedient in following out instructions, he is forced to conclude that the fault lay in the method.

His patients, who have worn both braces and plaster-of-Paris jackets, all give testimony in favor of the superior comfort of the latter, which would lead him to use this method even were the results no better than those attained by instruments, but where he sees improvement take place in patients who have steadily grown more crooked during years of instrumental treatment, he feels more and more that most of the machines he has seen are worse than nothing.

Dr. Ridlow thought that surgeons are not sufficiently definite as to what is meant by cures and what by exercise for the patient. He was in the habit of dividing the cases which he saw into three classes for prognosis and treatment. In the first class there was little or no rotation, and the spine could be put into what seemed to be the normal position for a brief space of time. In the second class there was more or less rotation and rigidity of two or more segments of the spinal column, and the deformity could not be reduced, but pain and weakness were absent. In the third class there was marked curvature and rigidity; and, in addition, pain and weakness.

In the first class of cases he believed that a cure could be effected; and here he deprecated all use of apparatus in the treatment. In the second class of cases he was inclined to think, with Mr. Bernard Roth, of London, that the spine could be made straight and the rigidity overcome. Gymnastic exercises are of great service, but as to mechanical means, he did not feel sure that they are of any value. In fact, he was convinced that they sometimes do harm, but at the same time he found it advisable to employ them himself in certain instances. Any apparatus made use of should be light and elastic, and made to fit. In the third class the spine could not be straightened or the rigidity overcome, but the patient could be made to carry himself in better form. Here he was accustomed to prescribe certain exercises, and in addition he used a steel apparatus which would act somewhat as the hand of the surgeon in correcting the deformity. It should not be flexible, but he thought it should be changed in its adjustment each day according to circumstances. The osseous curve, in his experience, always remains unchanged. Of course, much can be done by baths, massage, and electricity; but more can be accomplished by the use of suitable gymnastic exercises than by any other means.

He said he was surprised that something more definite in regard to such exercises had not been insisted upon in the present discussion. Sitting upon a stool and twisting the body he thought accomplished as much as anything else in developing the spinal muscles. The patient

should be put in a position nearest the normal that was attainable, and instructed to maintain this to as great an extent as possible. Dr. Ridlow then went on to advocate the system of exercises described by Mr. Roth in Heath's *Dictionary of Surgery*, the "key-note" position (in which the patient is to be exercised) being that position of the trunk and arms in which the greatest improvement in the position of the spine is obtained. A cure was considered by Mr. Roth to have been accomplished when the patient was so educated that the best possible position became an habitual one. This surgeon, he believed, had done more to secure good results in lateral curvature than any one else that he knew of. If we knew just what we could accomplish in any particular case, a definite plan of treatment could be adopted, which is much preferable to the uncertain and slipshod methods hitherto in vogue.

Dr. V. P. Gibney stated that he had not much to add to what Drs. Judson and Ridlow had said. He was now hard at work in practically testing Roth's system of treatment. Among the points which had not been taken up in the discussion was the subject of measurements, and he thought it of the utmost importance that some definite system should be adopted upon which all orthopædic surgeons could agree. In carrying out Roth's methods it is very difficult to get dispensary patients to come to the surgeon every day, and he had recently organized an evening school of gymnastic exercises for young girls afflicted with lateral curvature. Their powers of resistance seemed, as far as he was able to judge, to have developed wonderfully already, and the experiment bade fair to be a very successful one.

In closing the discussion, Dr. Ketch said he thought that it would no doubt be as difficult to maintain the compensating curves spoken of by Dr. Phelps as to remove the lateral curvature and rotation. He could not say that he regarded a rotary lateral curvature cured which had a deformity remaining. Braces will either prevent the deformity from becoming worse, or might tend to produce amelioration. Experience with special kinds of apparatus enabled some surgeons to obtain better results with these than other surgeons could who had not the same facility with them. Thus, Dr. Sayre was no doubt more successful with the plaster-of-Paris jacket than those less familiar with this appliance. A steel brace should have a fixed point for making pressure, which should be oblique, and not directly lateral. In regard to Dr. Judson's remarks, he thought that any analogy between inflammatory disease of the vertebræ and rotary lateral curvature was inadmissible. It seemed to him that Dr. Judson had been especially fortunate in not having met with any of those inveterate cases referred to in the paper and the discussion. There is no deformity so much like that of clubfoot as rotary lateral curvature of the spine. The former condition, however, is usually detected soon after birth, and measures taken to correct it. Hence we met with much fewer cases of inveterate clubfoot than of lateral curvature, since the latter is not, as a rule, treated at a sufficiently early stage. After all, the prevention of deformity was the point on which he desired to lay most stress. He believed that no two cases are alike, and whatever the plan of treatment adopted frequent inspection and the most careful watching are essential on the part of the surgeon.

Section in Pediatrics.

J. Lewis Smith, M.D., Chairman.

Stated Meeting, March 28, 1888.

Dr. A. Jacobi read a paper on

sepsis in the newborn.

Semmelweiss was the first to teach that puerperal fever in women and newborn infants is of traumatic origin, septic material being absorbed through erosions and abrasions of the skin and mucous membranes, the lesions in the newborn being especially those which occur about the head and navel. The changes in such cases are often manifested in the umbilical vein, arteries, and surrounding tissue; and they sometimes occur in cases in which thrombi are, to all appearances, normally formed. Some writers have stated that it is impossible for sepsis to occur through the cut end of the cord, excepting in cases in which the ligature surrounding the stump is insecure, but Budin has seen cases in which pus could be expressed though the ligature was properly applied, and the author had also seen such cases in which the umbilical wound refused to heal.

The question may be asked, Whether sepsis can occur without apparent disturbance of the navel? And the author would reply that this is possible, though it is not of frequent occurrence. Cases undoubtedly occur in which a newborn infant is infected while the mother remains unaffected, the poison being transmitted by the discharges from the mother; or the fœtus may be infected through the medium of the maternal blood. In such cases no wound surface in the maternal tissues may be apparent. Sepsis may also occur, according to some writers, through the mother's milk; but if this is possible it is also true that many infants are so robust that they remain unaffected however contaminated the milk may become. Septic pneumonia and other pulmonary troubles have also been recorded in consequence of the inhalation and aspiration of decomposed or decomposing material. If there are abrasions and erosions of the skin, sepsis may result even though the lesion may apparently be a very slight one. Spontaneous pyæmia has been described by certain authors, and though such a supposition seems irrational, cases occur now and again in which no lesion can be found. Two such cases were recently seen by the author.

Ebstein describes three forms of sepsis in infants which seem to be due to lesions in the mouth: (1) Septic catarrh which may result in hemorrhage and other accidents, (2) croup, and (3) diphtheria. In such cases there are unquestionably lesions of the epithelium of the oral cavity. These lesions may be slight, but are yet sufficient to afford an avenue for the entrance of septic elements. The practical point in this matter is that manipulations about the mouth of the newborn infant should be of the gentlest possible character. Lesions of epithelium in the vagina and anus may also give rise to sepsis.

Pneumonia in the newborn is not of infrequent occurrence, though it occurs more frequently after the third or fourth day of life. It may result from the aspiration of liquor amnii, meconium, etc. Too much stress should not be laid upon the influence of micrococci. They

occur in all parts of the body, and the micrococcus of sepsis is not yet absolutely determined. Much yet remains to be done upon the bacteriology of this subject. Experimental pathology is useful, but it cannot prove everything, and much of it is exceedingly faulty. To the question, Whether sepsis can be transmitted by the air? it may be replied that it can, even without the evidence which is afforded by experimental pathology. The symptoms and localization of this condition are many and varied—for example, dermatitis of varying intensity, syphilis, ulcerations of the scalp and of the umbilical stump. Hemorrhage, which is a very common symptom, may be due to the influence of micrococci, or it may be due to the undeveloped condition of the vessels in the newborn infants which predisposes them to give way from very slight causes. Purulent metastases also occur frequently in different parts of the body, or the inflammatory collection may consist of bloody serum or sero-pus. It must not be forgotten that changes in such patients take place very suddenly, and often with a fatal issue, when no great rise of temperature has suggested a serious condition. Great loss of weight is apt to be noticeable in such cases. If the case becomes chronic, the chances of recovery become more favorable.

Dr. J. Lewis Smith read a paper in which cases were narrated showing

THE MANNER IN WHICH SEPSIS OCCURS IN THE NEWBORN.

He had observed that this is sometimes obscure, but that the poison usually enters the system through the umbilicus, and is usually microbic. The cases which had come under his observation were divided into groups: First, those in which an umbilical phlegmon had resulted from the umbilical ulceration. In some of these cases diphtheritic inflammation was present. This was especially the case in connection with an epidemic which recently occurred at the New York Infant Asylum. In other cases the inflammation of the umbilicus was accompanied with sepsis of moderate intensity. In the epidemic referred to the disease seemed to be due to the poisonous atmosphere of the wards of the hospital. Careful examination of the air revealed the presence of multitudes of disease germs, and even after the wards had been fumigated with sulphur, disease germs could still be found and cultivated. In this group of cases the infection was transmitted mainly through the lymphatics. The pathological investigations upon the cases which were reported were made by Prof. T. Mitchell Prudden.

The second group included cases in which the poison was transmitted through the umbilical vessels, especially the vein. These had not been so numerous as the first group.

The third group included cases which were infected by all other possible channels, as the lungs, the skin, etc. If sepsis is possible through the umbilicus, as seems to be proven, there is great probability that it may also occur, if less frequently, through other channels.

Trosseau has observed that infantile erysipelas is most frequently seen in hospital wards in which puerperal fever is present. Such cases would now-a-days be considered of septic origin. Fortunately, they are more rare than they used to be, and this is probably due to improved methods in obstetrics.

Dr. Andrew F. Currier read a paper entitled

A RÉSUMÉ OF RECENT VIEWS CONCERNING ICTERUS NEONATORUM; AND ITS RELATION TO SEPSIS.

The great size of the liver and its consequent capacity for holding blood: the abolition of the umbilical vein and ductus venosus, the channels by which the placental circulation is maintained, and the degenerative changes which occur in the blood after the ligation of the umbilical cord are facts which enable us to understand why morbid conditions, which are traceable to the liver, occur so frequently during the first few days of life. A review of the various theories which have been advanced to explain the etiology of icterus neonatorum shows great differences of opinion, but the following facts seem to be pretty well established: (1) With the completion of fœtal life and the termination of the placental circulation, extensive changes in the blood of the infant always take place. (2) These changes are degenerative and are much more marked in immature and feeble infants than in those who are robust. (3) The external evidence of these changes appears in the form of icterus, which, in the greater number of cases is of brief duration, and is not accompanied by symptoms indicating serious constitutional disturbance. (4) In those cases in which the icterus is profound and persistent, serious results are to be expected, for the condition is not caused by the ordinary degenerative changes in the blood corpuscles which always follow the ligation of the umbilical cord. (5) Among the causes which are followed by severe or fatal symptoms are (*a*) Non-closure of the *ductus venosus* (Quincke's theory). (*b*) Defects and malformations of the bile ducts. (*c*) Œdema of Glisson's capsule (Birch-Hirschfeld's theory). (*d*) Weakness of the heart, especially its right side, pulmonary atelectasis, insufficient anastomoses of the veins of the umbilicus with the contiguous veins of the abdomen, syphilitic and other new growths, malformations and deformities of the liver, and other causes which lead to insufficient tension in the subdivisions of the portal vein, with consequent stasis, effusion of bile and resorption of the same into the circulation either directly by way of the hepatic veins, or indirectly by way of the lymphatics.

The relation of icterus to sepsis depends largely upon the conception which one has concerning sepsis. If we understand by sepsis the disturbing influence which is produced upon the body and its functions by microbes of decomposition which are conveyed to it from without and through the medium of a wound surface, there are undoubtedly certain cases of icterus in which sepsis plays an important part. The ordinary cases of icterus in which there is no particular disturbance of function are simply the result of hemoglobinæmia, which Silbermann considers physiological within certain limits. There are other cases in which the icterus is more profound, and the evidences of disturbance in the secretions more decided, but nothing which indicates the presence of pus in the system. The umbilicus in such cases has a healthy appearance, and there are none of the ordinary symptoms of phlebitis though the cases may proceed to a fatal issue.

In a third class of cases the skin may or may not be decidedly yellow, there is great constitutional disturbance with high temperature, dry tongue, and tender and swollen belly, there may also be chills and abscesses in the

parenchyma of the liver and elsewhere. The umbilicus is swollen and ulcerated, and pus or blood exudes from the arteries or veins, or both. Birch-Hirschfeld found in the blood of such patients both rod and spherical bacteria. Schüller and Vogel observed that this condition coexists with puerperal fever in the mother, and it is not improbable that the same element of infection is common to both. Between such cases, in which there are manifestly septic elements and conditions with more or less decided jaundice, and those in which the jaundice is due to an excess of hæmoglobin in the blood or to a resorption of bile, a clear and broad distinction can be made. The former are simply cases of septicæmia, the latter are cases of toxæmia, in the sense that the blood either contains a substance which is abnormal to it (the bile), or an excess of a normal element (the hæmoglobin).

CORRESPONDENCE.

COCAINE POISONING AND ITS ANTIDOTE.

To the Editor of THE MEDICAL NEWS,

SIR: I submit to you an interesting example of cocaine poisoning which came to me for treatment last fall. I was called up to attend the following case of cocaine poisoning in the person of a student who had been experimenting on himself by hypodermatic injections of a four per cent. solution of cocaine at regular intervals during the day, but they were not followed by its toxic influence until some four hours after its last exhibition. These were shown principally by irregularity of the circulation accompanied by cerebral excitement.

Patient's attacks came on in paroxysms whose onset were indicated by a steady, constant rise in the pulse accompanied by tinnitus and a sensation as though the head would burst. Capillary circulation somewhat interfered with, the extremities being colorless. At the height of the paroxysm patient grasped the head between the hands and labored under intense excitement lasting from thirty to sixty seconds, when there was a gradual decline in the pulse to normal (and sometimes below) and also of the cerebral symptoms, patient becoming quiet during the interim which lasted from one to two minutes, when the same cycle of symptoms were repeated. Pupils and tactile sensibility normal, respiration not markedly interfered with except at the height of the paroxysm, when it became more superficial and hurried.

Amyl nitrite seemed clearly indicated, and was used by inhalation with immediate relief, followed in a short time by an entire disappearance of all untoward symptoms.

Yours very truly,

F. P. EMERSON.

CHESTER, VERMONT, March 18, 1888.

NEWS ITEMS.

CINCINNATI.

(*From our Special Correspondent.*)

The American Medical Association.—A large attendance is anticipated for the approaching meeting of the American Medical Association at Cincinnati; that it will be of interest and profit to its members is confidently expected. Cincinnati is especially adapted by location and her excellent railroad facilities to the reception of the Association. The city is easy of access from every quarter; and her hotel accommodations are abundant. The Committee on Transportation report that it has secured the customary reduction of fare (full rates to the meetings, and one-third rates returning) over all roads.

The Committee of Arrangements, under the efficient leadership of Dr. W. W. Dawson, has been for some time actively engaged in preparing for the event. The great Music Hall has been selected as the place of meeting, as it affords ample facilities for the holding, not only of the general sessions, but of all the sections as well. It is also easy of access from all the hotels, and by street railways from every part of the city.

As is usually the case, the titles of papers to be read are not promptly reported, and the programme is still very incomplete. It is, therefore, impossible to judge, as yet, of the amount or character of scientific work to be done.

One of the most interesting features of the meeting will be the exhibition of drugs, books, surgical instruments, etc. In this feature the meeting is expected to excel. This is due chiefly to the fact that arrangements have been made to retain many of the exhibits for the Centennial Exhibition of the Ohio Valley and Central States, which begins here on July 4th.

The entire programme for the entertainment of visitors has not yet been made known. It is generally understood, however, that there will be a large reception at the Art Museum, and a grand concert at the Music Hall. Every effort will be made to render the visit of the Association enjoyable, without losing sight of its scientific interest. Nothing is more desired by the profession here than that the coming meeting should strengthen the bonds of friendship between the members of the Association, and it is hoped that the meeting in May will be memorable for the large number of men coming from every quarter of the country who have at heart the well-being of the Association, the interests of the profession, and the advancement of medical science.

Bandage Cases in Switzerland.—Col. Ziegler, physician-in-chief to the Swiss army, has introduced the use of a dressing or bandage case which will be exceedingly useful to the soldier in the field. Captain Secretan has lately given a very interesting lecture on this subject, in which he says: "Col. Ziegler, with the aid of Dr. Kocher, of Berne, has had made some very practical small cases. They contain a muslin bandage, about six feet in length, in a wrapper of parchment paper. There is sufficient gauze to make a provisional antiseptic dressing for wounds of small dimensions; for instance, such as those caused by bullets. This is very important, as every one knows these wounds are less dangerous the sooner they are protected from infection. It was at first intended to distribute these cases to the men, as is done in Germany, where each soldier is provided with a small box of dressing, sewn into the flap of his tunic between the lining and the cloth; but practice has shown the evils of this system. Nine times out of ten, when the dressing was needed, it was found soiled by perspiration and dust, deteriorated by damp, or that the soldier had used it for other purposes. Therefore, these cases will not be distributed to the troops. They will be wrapped up in packets of five in an envelope of waterproof paper

bearing instructions as to their use, in three languages, and they will be kept in the store. The doctors will have them in their cases in reserve, the ambulance corps in their knapsacks, and they can be ultimately distributed to the patrols, to guards, and to isolated detachments where medical care might momentarily fail."

A Double Monster.—The *Madagascar Times* reports that a Malagsy woman in Antanarivo gave birth to a double female child. The child had four eyes, two noses, four ears, four arms, two mouths, and four legs, but only one head and one body. Both parts of the child were female. Both the mouths uttered sounds, but only one suckled the mother. The sight was so strange that the babe was put to death on the second day, and the mother, we are told, is severely ill from fright.

A Lack of Military Surgeons in France.—A recent competitive examination for the French army medical service failed to attract a single candidate.

Gelatine Plaster Casts for Anatomical Specimens.—Some time ago Mr. C. W. Cathcart, M.B. (Edinburgh Infirmary), proposed a new basis for making casts of anatomical specimens. The basis is made as follows: Take of "No. 1" gelatine, say six ounces, soak it till quite soft and swelled, afterward dry it slowly until just pliable. As it has now the minimum of water necessary, melt it in a water bath, and add six ounces (measure) of clear glycerine. When the two are thoroughly mixed, the material is ready. To render it opaque, add while it is still hot, and therefore fluid, small quantities of a thick paint made by rubbing up oxide of zinc in glycerine. When a skin color is wanted, a little vermilion is required to give a warm, life-like hue. Should other things be cast, the prevailing color can be given with water color as required (tubes of moist water color sold at two pence each will be found convenient). Several pounds of this mixture may be made at once, and portions used as required.—*Scientific American*, March 3, 1888.

The Anthropometrical Method of Identifying Criminals.—*Science* of March 30, 1888, writes that the anthropometrical method of identifying criminals, originating in Paris, has been adopted in the prison at Joliet, Ill. In addition to the photograph of the prisoner, accurate measurements of his height, the length and width of his head, the length of the left middle and little finger, of the foot, the forearm, the ear, the stretch of the arms, description of scars, color of the eyes, and so on, are recorded; and it is thus possible to identify prisoners assuming false names with far greater ease than was before possible. It is asserted that, in the two years that the system has been in operation in Paris, eight hundred and twenty-six habitual criminals arrested under assumed names have been identified. Besides the practical utility of the system, it amasses very valuable statistical data contributing toward the natural history of the criminal classes.

Death of Professor Combal.—The recent death of Combal, Professor of Clinical Medicine at Montpellier, is announced.

A Successful Removal of the Larynx.—Perossi reports in a Milan journal, *Caffé*, that there is now living in the vicinity of Indra an Italian, named Nesmini, whose larynx was removed in 1875. This was the first extirpation of the larynx done in Italy, and the fourth in Europe. The patient continues in comfortable health.

The Monopoly of Antipyrin.—The Society of Practical Medicine, of Paris, has discussed the question of the validity of the patent which covers the manufacture of antipyrin. Their report shows that under French law it is a medicine, and its manufacture cannot be controlled by patents. Druggists have a right to fill prescriptions for antipyrin, no matter by whom manufactured, if it be a correct chemical compound.—*Le Progrès Médical*, March 3, 1888.

The Bacteriology of Beer.—Grönlund, of Copenhagen, has studied the fermentation which at times gives to beer a peculiarly bitter and disagreeable taste. He found that this process in the beer was caused by a germ known as *Saccharomycetes Pastorianus I.* He advises the greatest cleanliness in the vessels used in brewing, frequent bacteriological examination of beer, and the use of only the purest yeast for manufacturing beer.—*Centralblatt für Bakteriologie*, No. 10, 1888.

The Cause of Cleopatra's Death. — Grand-Marais, of Nantes, has recently written a pamphlet to prove that the death of Cleopatra was caused, not by the bite of the asp, but by asphyxia from carbonic acid gas. He is led to this conclusion by the fact that her attendant women were found dead beside the Queen's bed, while no marks of a serpent's sting were found upon her body.—*Annales d'Hygiene*, March, 1888.

The Implantation of Teeth.—*Science* of March 23, 1888, writes that Dr. Yonger, of San Francisco, was the first dentist in this country to perform successfully the experiment of implanting teeth. This process is not to be confounded with transplanting teeth, which has been practised by dentists for many years. In the latter operation, a tooth freshly extracted is inserted in a socket from which one has just been drawn, and the parts unite, circulation between the jaw and the tooth is established, and the latter actually takes the place of its predecessor.

In Dr. Yonger's experiment, the tooth to be replaced has long been extracted, and the socket filled up with bony substance. He drills into the jaw, gouges out a new socket, and then, taking a tooth that has long been extracted, cleans it thoroughly, soaks it in bichloride of mercury, and inserts it in the socket just formed. This new tooth in due time becomes firmly anchored, and as serviceable as the original one before it became decayed. Dr. Yonger holds that the tooth is held in its place by the soft tissues surrounding it, and that the artificial socket has nothing to do with anchoring it.

The experiment described above was performed by Dr. G. M. Curtis, of Syracuse, N. Y., who afterward extracted the implanted tooth, and sent it to Dr. W. M. Gray, the microscopist of the Surgeon-General's Office, who has made a very careful examination of it. His experiments prove beyond question that the tooth so implanted is revived, the circulation is established between the socket and the implanted tooth, and that the socket does take an active part in anchoring the tooth. A tooth so implanted is much more firmly anchored in the jaw

than one of the originals, and, in the case referred to, the tooth was held so firmly that Dr. Curtis broke it in extracting it. Dr. Gray does not doubt that the soft tissues do take an active part in the operation, but he has proved his propositions in regard to the bone and the tooth beyond all question.

The Sense of Taste. — Bailey and Nichols are quoted by *Science* of March 23, 1888, in their report of recent experiments upon the sense of taste, as follows:

1. The sense of taste is vastly more delicate for bitter substances than for any others. It is possible to detect quinine in a solution that is only $\frac{1}{20000}$th strength of a sugar solution, and we have previously shown that quinine is only $\frac{1}{10}$th as bitter as strychnine.

2. The order of delicacy is, bitter, acid, salt, sugar, and alkali.

3. The sense of taste appears to be more delicate in women than in men. This is true in the case of all the substances excepting salt. As we had found a similar difference in favor of female observers in an earlier and independent set of experiments, which agreed in every essential particular with the results of the present test, we do not regard it as an accidental difference, or as likely to disappear in more extended investigations.

Marked differences in the delicacy of the sense of taste of different individuals were met with in the course of these experiments. There were persons who could place in the proper class, solutions containing one part of quinine in 500,000, and other substances in correspondingly high dilution, while some failed to detect solutions of more than three times the above strength. In how far this was due to education, we are unable to say. Among the men examined were many who have been accustomed to handling and recognizing drugs and medicines, and yet even these were frequently surpassed by female observers who had no such training.

Suicide by Opium in China.—A Catholic paper published in China prints a statement of a startling description with respect to opium poisoning. Opium is the general medium for suicide in China, and the remedy which is recommended, namely, to make the would-be suicide swallow the blood of a live duck as an emetic, may be passed by with a smile—although, should it act as an emetic, it may, perhaps, be as useful as any other. The statement that follows, however, is more worthy of attention, for the native paper says that there is reason to doubt if the supposed successful suicides actually die at all, as the official exhumation of many bodies shows that after the fumes have evaporated the buried persons have struggled violently to free themselves. There are many well-attested instances of persons having been buried alive, and it is generally supposed that they have been the victims of a sort of trance closely simulating death.—*Indian Medical Gazette*, January, 1888.

Removal of a University Professor for Scandal.—A professor in the University of Padua has been recently suspended from office by the Government for furthering dissension among his colleagues and diffusing scandal.

A Novel by Dr. Richardson.—Dr. Benjamin Ward Richardson has written a novel, called "The Story of a Star; a Romance of the Second Century." Its plot is laid in the last struggle of the Jewish people for national independence. Messrs. Longman & Co., London, will shortly publish it in three volumes.

A Domestic Remedy for Ivy Poisoning.—Duffield writes to the *Scientific American* of March 24, 1888, as follows:

For many years I suffered terribly from this cause, but remembering that all poisons are acids, and that alkalies neutralize acids, I bathed the poisoned member in a strong lye made from wood ashes and obtained instant relief. Subsequently I found that the dry ashes alone, rubbed over the poisoned member, were equally effective. Since this discovery, I have had no further trouble, and having tried this simple remedy repeatedly on myself and on many others, with like good results, I am now thoroughly convinced that wood ashes will in every case prove a sure and sovereign specific for all cases of ivy poison.

Poisoning by Common Insect Powder. — A child, in Toronto, swallowed two drachms of common insect powder, and tetanic symptoms, with coma, followed. Death, however, was averted. Such symptoms as these are rare, and show that the various species of pyrethrum are not quite free from toxic properties.—*American Druggist.*

Professor Scanzoni.—The *Medical Press* writes that the celebrated professor of midwifery, of Würzburg, Scanzoni, bade last week an adieu to his professoriate. Although living for so many years in Germany, he was born in Prague in 1821, where he for some time performed the duties of clinical assistant in the Lying-in Hospital. In his valedictory lecture to the students he told them how in the fifties he had but little practice and plenty of time for literary activity. He was then summoned to Russia to attend the Empress, after which, at a bound, he became the most sought after obstetrician in Germany. Since that time his opportunities for literary work have been but few.

The Difficulties of Medical Journalism in Russia.—The *Medical Press* announces that in consequence of the confiscation of three articles by the official Censor, the appearance of the February number of the *Medizinskoïe Obosrenïe*, a leading Russian medical review has been delayed a month.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM MARCH 27 TO APRIL 2, 1888.

CROSBY, W. D., *First Lieutenant and Assistant Surgeon.*—Granted leave of absence for two weeks.—*S. O 29, Department of Arizona*, March 16, 1888.

AZPELL, THOMAS F., *Captain and Assistant Surgeon* (retired).—Died March 12, 1888, at Fort Lee, N. J.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

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ORIGINAL LECTURES.

THE CARTWRIGHT LECTURES.
ON THE GENERAL PATHOLOGY OF FEVER.

Delivered before the Association of the Alumni of the College of Physicians and Surgeons, New York, March 29, 1888.

BY WILLIAM H. WELCH, M.D.,

PROFESSOR OF PATHOLOGY, JOHNS HOPKINS UNIVERSITY, BALTIMORE.

LECTURE I.

THE NATURE OF FEVER.

(Concluded from page 371.)

THAT the heat-regulating mechanism, although profoundly disturbed, is not entirely paralyzed in fever, is proven by the effect of heat and cold upon fevered individuals. Although Colasanti believed that his fevered guinea-pig had lost all power of heat regulation under varying external temperatures, a similar conclusion has not been reached by others who have investigated this question.

We can best describe the condition of heat regulation in fever as unstable or ataxic. External cold stimulates to some extent the heat production of an individual in fever, but by no means as much as it does in health. A person in fever is not able to maintain his bodily temperature under the influence of heat and cold to the same degree that he can under normal conditions. Liebermeister, as is well known, held that heat regulation in fever is simply adjusted for a higher point, although he admits not perfectly adjusted. Experience shows that this so-called adjustment is so unstable that it does not seem proper to compare it with that to normal temperatures in health, so that it is not clear what deep meaning lies in Liebermeister's idea.

We cannot imagine the heat-regulating mechanism to be other than a nervous one.

Some years ago this was about as far as the theory of the mechanism of fever could be carried. All paths led to this mysterious nervous apparatus, and beyond this nearly all was speculation. We stood, as has been said, before imposing processes veiled in the deepest obscurity. Since then the veil has been lifted here and there and we have caught glimpses of the nature of these processes. I refer particularly to the results of researches which have brought to light a more immediate and direct dependence upon nerve energy, than had been supposed, of chemical processes concerned in the disintegration and construction of tissue, and, therefore, in the production of heat.

With one side of the nervous mechanism concerned in temperature regulation, the classical investigations of Claude Bernard have made us tolerably familiar. This is the vaso-motor nervous apparatus presiding over the circulation of blood in the superficial parts of the body, and thereby controlling in great measure the discharge of heat. That the important part taken by the perspiration in the dissipation of heat is likewise under nervous influence, has been demonstrated by Luchsinger. The facts concerning this side of the regulation of heat are too well known to require elucidation on this occasion.

Heat regulation, however, is effected not only by variations in the elimination of heat, but also by changes in the production of heat. Familiar as the fact is, it can never cease to arouse our admiration that the temperature of the body remains the same in cold and in warm atmospheres. Man has become so dependent upon clothing that in the naked condition his capacity of preserving his normal temperature in a cold environment is much less than that of most animals. Pflüger has demonstrated that the heat regulation under varying external temperatures is accomplished by changes both in heat production and in heat loss, so that in a cold atmosphere more heat is produced and in a warm atmosphere less heat, provided the external temperature is not so high or so low as to make it physically impossible to preserve the body temperature. It is evident that this is the most rational and economical method of retaining the internal temperature of the body. To regulate the body temperature simply by variations in the discharge of heat, as was formerly supposed to be the method, would be, as has been said, like regulating the temperature of our rooms summer and winter by opening and shutting the windows without controlling the source of heat.

A heat-producing or thermogenic apparatus, therefore, is no less a part of the heat-regulating mechanism than is the heat-discharging or thermolytic apparatus, to use the terms employed by Foster. As the thermogenic apparatus is less generally understood it is not permissible to dismiss its physiology in this connection so briefly as I have the thermolytic, although our knowledge of the former is very imperfect.

I can assume that the convincing reasons are known to you which have led physiologists to conclude that most of the animal heat is produced in the muscles and the glands, and that the muscles have the larger share in this function. It is also well known that stimulation of secretory and motor nerves causes not only visible physical alterations in the glands and muscles, but also production of heat. This sort of dependence of heat production upon innervation has been long admitted. It may, however, not be so generally known that there are reasons to believe that nervous impulses control chemical changes which result in the production of heat independently of visible physical alterations of the tissues; in other words, that heat production or thermogenesis is at least in considerable part under the immediate and direct control of the nervous system. The idea is not a new one, and was advocated especially by Claude Bernard. Recent discoveries, however, have given it unexpected support.

This subject of the relation of innervation to thermo-

genesis is most pertinent to the pathology of fever, but it is essentially a physiological one, and as I wish to confine to a single lecture what I have to say concerning the theory of fever, it is impossible for me to do more than summarize the most essential points belonging here. This I can do the more readily as Dr. MacAlister,[1] in his admirable Goulstonian Lectures on the "Nature of Fever," which were delivered last year, has clearly and forcibly presented the main facts.

The larger part of these facts relate to the chemical changes and heat production of muscles under varying conditions.

That a large part of the chemical changes in a muscle in the condition which we call repose is under the influence of the nervous system, is made apparent by the great diminution in its consumption of oxygen and formation of carbonic acid, which follows the separation of the muscle from all connection with the central nervous system. This is conclusively shown by the experiments of Bernard, Pflüger, von Frey, and others. It is, of course, possible, and it has generally been supposed that under these circumstances it is simply the withdrawal of motor impulses which lowers the heat-producing energy of the muscle.

Far more suggestive as regards the point under consideration are the results of investigations which have been carried on in Ludwig's laboratory by Meade Smith, MacAlister, and Lukjanow. These experimenters have shown that heat production and contraction are in a measure independent properties of the muscle. By various influences the thermogenic property may be so impaired that a stimulus causes contraction with scarcely any development of heat. The laws governing the restoration and the fatigue of the thermogenic function differ from those controlling the mechanical function. These researches, upon which I here only touch, have made it extremely probable that there are in the muscle chemical processes resulting mainly in the production of heat and chemical processes causing mainly contraction, and that these processes, although coördinate, are not identical. A new light is shed upon the meaning of the term chemical tonus of muscle, which has for some time been used by some physiologists. Great caution is properly exercised by Ludwig and his pupils in the interpretation of these interesting results. They do not infer from them, necessarily, the existence of so-called thermic or calorific nerves. They suggest that it is possible to explain the phenomena upon the supposition that there are in the muscle two kinds of material, thermogenic and contractile, and the nervous impulses acting upon these may pass through the same set of nerves.

Proof of the existence in connection with muscles of thermic in distinction from motor nerves, would be afforded if we could succeed, after paralysis of the motor nerves, in exciting by nerve stimulation the thermogenic function of the muscle. We possess, in curare, a drug which paralyzes the terminations of the motor nerves. Meade Smith attempted by its aid to determine whether possible thermic nerves may be differentiated from motor, but he reached no positive conclusion on this point. There are, however, on record some observations which suggest the possibility that in moderate doses curare may leave intact thermic nerves after the suspension of the function of motor nerves. When an animal is profoundly under the influence of curare the internal temperature falls, and the processes of oxidation are greatly reduced. The animal is no longer able to resist the changes of external temperature, its own temperature rising and falling like that of a cold-blooded animal when exposed to heat or cold. This effect of curare poisoning is another proof of the dependence of heat production upon nervous influences. Claude Bernard in his early researches on the action of curare noted elevation of temperature soon after its administration. Voison and Lionville[1] observed after subcutaneous injections of curare in man rigors, perspiration, headache, and elevation of temperature to 104.7° F. They attribute to curare the power of producing all of the essential phenomena of fever. Fleischer[2] noticed in dogs and in rabbits rise of temperature after curare injections, and the same was observed in a rabbit in one case by Högyes.[3] Recently Mosso[4] claims that an animal may be placed so far under the influence of curare as to paralyze completely the voluntary muscles, and the internal temperature either remain normal or rise. He infers that these moderate doses of curare, although sufficient to paralyze the motor nerves, must have left intact the thermic nerves. That rise of internal temperature is not due to retention of heat, he thinks is evident from the normal or elevated temperature of the skin. Mosso is strengthened still further in his conclusion as to the existence of thermic nerves, by finding that after complete paralysis of the motor nerves by curare injections of strychnine cause an elevation of rectal temperature, which may amount to three degrees centigrade. Under these circumstances strychnine produces no spasms or other visible mechanical effect upon the muscles. Mosso brings forward a number of other experiments (decidedly open to criticism) intended to demonstrate the existence of nerves directly controlling heat production, but those which I have mentioned are by far the most striking. It seems to me that the natural interpretation of these experiments is in favor of the view that there are nerves controlling heat production in the muscle distinct from motor nerves. Far more conclusive as to this point than thermometric observations would be calorimetric experiments determining the heat production of animals under varying doses of curare.

This whole line of experimentation directed toward the differentiation of the mechanical and the chemical functions of muscle is certainly most suggestive, but so long as the interpretation of the results is not perfectly clear, we should be very guarded in drawing far-reaching conclusions. I cannot refrain, however, from pointing out that, as mentioned by MacAlister, all of these thermogenic phenomena may be found eventually to depend upon nerves whose chief function, on the one hand, is the disintegration, the metabolism of tissue, and, on the other hand, the restoration, the anabolism of tissue. From the study of the electrical changes which stimulation of the pneumogastric nerve produces in the heart muscle, Gaskell concludes that this nerve puts the heart in a condition of relative rest during which the energy of the muscle is increased. During this period there is reason to believe

[1] MacAlister: The Lancet, 1887, vol. i.

[1] Virchow and Lionville: Virchow u. Hirsch's "Jahresbericht," 1886, I. p. 330.

[2] Fleischer: Pflüger's Archiv, Bd. ii. p. 441.

[3] Högyes: Arch. f. exp. Path. u. Pharm., Bd xiv. p. 136.

[4] Mosso: Virchow's Archiv, Bd. 106.

that the material of the muscle, which, when disintegrated, gives rise to heat and mechanical work, is in the process of restoration. Hence Gaskell speaks of the pneumogastric or inhibitory nerve of the heart as anabolic—that is, it directs the restorative, formative, anabolic processes in the muscle. On the other hand, the accelerator nerve of the heart induces the opposite electrical changes in the heart muscle. Gaskell describes this nerve as katabolic—that is, its stimulation causes disintegration of the muscle materials, and liberates energy in the form of heat and of mechanical work. If it be found that similar inhibitory and accelerator nerves preside over the chemical changes in the voluntary muscles and other tissues of the body, then Gaskell's induction as to the existence of anabolic and katabolic nerves must be regarded as one of the most important and profound in modern physiology. Thermo-excitory nerves we should then rank as katabolic, thermo-inhibitory as anabolic.

These investigations tending to demonstrate the independent existence of thermogenic properties in the muscles and possibly of nerves directly controlling thermogenesis, have prepared us for the consideration of the relation of the central nervous system to the heat-producing properties of the body. Here you will willingly permit me to confine my remarks to the more essential and best established facts, without entering into a full discussion of one of the most perplexing subjects in the physiology of the nervous system.

The clinical basis of the doctrine that lesions of the central nervous system influence directly the temperature of the body was laid by Sir Benjamin Brodie, who reported the well-known case of fracture of the cervical vertebræ and injury of the spinal cord followed within a few hours by a rise of temperature to 111° F. measured between the scrotum and the thigh. Since then many similar instances have been reported. It is well to remember, in framing theories on the basis of these cases, that there are also on record not a few instances in which apparently similar injuries of the same parts of the spinal cord have been followed by equally striking fall of temperature.

The experimental basis for the acceptance of an influence of the nervous system on temperature was laid by Bernard, in his celebrated experiments on the effects of division of the sympathetic nerve in the neck. Bernard interpreted the increased temperature of the ear following this operation as referable not only to the larger amount of blood in the part, but also to increased tissue metamorphosis and consequent heightened heat production. The latter part of this interpretation is not generally accepted. It may be said here that the common idea that an organ or tissue simply because it receives a larger supply of blood indulges in more active metabolism is opposed by the investigations of Pflüger, who finds that the amount of oxygen taken up by the cells depends in a far higher degree upon the state of their innervation at the time than it does upon the supply of oxygen. The demand of the tissues for oxygen is not increased simply because the supply is greater. The arguments upon which Pflüger bases this line of reasoning, although not without opposition, would dispose of the idea that when any considerable increase of heat production in the muscles occurs this can be explained simply by vasomotor changes. I mention this here, because the opinion has been advanced that a large part of the increased production of heat in fever and after certain injuries to the nervous system is referable simply to vasomotor changes in the muscles.

In 1866 Tscheschichin[1] published experiments which he interpreted as indicating the existence in the brain of centres which, when irritated, moderate the production of heat, and which he called heat-moderating or heat-inhibitory centres, and in the spinal cord of centres which when stimulated excite the production of heat, heat-excitive centres. These conclusions were not justified by the experiments, but they have been widely accepted.

I may here say that, in this connection, I use the term heat centre as a convenient and generally adopted one. There is a proper reaction against the prevailing misuse of the word centre for all sorts of little understood localization of nervous functions. It would undoubtedly be more accurate to use some such expression as thermically active region instead of heat centre.

It is not easy to reconcile the clinical fact that in human beings lesions of the spinal cord may be followed at once, or in a very short time, by extraordinary elevations of temperature with the results of experiments on animals. That the rise of temperature in human beings is not due to inflammatory fever is apparent from the rapidity with which it follows the injury. It cannot be explained by vasomotor lesions, for the paralysis of the vasomotor nerves accelerates the discharge of heat from the surface of the body. The high temperature can be explained on Tscheschichin's assumption. The lesion either stimulates the spinal thermogenic centres or removes the influence of the thermo-inhibitory centres. These clinical observations are the strongest support which has been found for the belief in the existence of centres in the spinal cord which accelerate heat production. Complete section of the cervical part of the spinal cord in a dog or a rabbit is, under ordinary conditions, always followed by a rapid fall of the internal temperature and diminished oxidation. These varying results in man and in animals have been explained by supposing that after section of the cervical cord, on the one hand, the discharge of heat is increased by dilatation of the superficial bloodvessels, in consequence of vasomotor paralysis; and, on the other hand, the production of heat is increased by withdrawal of thermo-inhibitory cerebral impulses. If, as ordinarily happens in dogs and smaller animals, the first factor predominates, then, in consequence of sinking of the internal temperature, the heat-producing processes are so reduced that the influence of the second factor is not manifest. The attempt has been made to test this explanation by placing the animal in a warm atmosphere. If thereby the heat discharge be reduced to a minimum, it is found that the internal temperature of the animal often rises more rapidly than that of a normal one under the same external conditions. Here thermometric observations are not conclusive as to the point to be tested, for the more rapid rise can be explained simply by failure of the heat-regulating mechanism. Wood's calorimetric experiments seem to show that there is greater heat production, under these circumstances, in the animal with cut cord. These experiments admit of various interpretations, but if they be regarded as establishing the assumption from which we started, then it is

1 Tscheschichin: Reichert und Du Bois-Reymond's Archiv, 1866.

evident that in man and in large animals the increased heat production after injury of the cord would not be so readily overcome by the increased discharge of heat from the surface, for, in proportion to its volume, a large animal has less surface than a small one. The interplay, therefore, of these opposing tendencies might cause different results, according to the size of the animals.

Tscheschichin found that a transverse section made at the junction of the pons and medulla oblongata is followed, in a short time, by rise of internal temperature. As the superficial temperature is also elevated, he concludes that there is no retention of heat; moreover, the section is made above the dominant vasomotor centre. Wood has shown by means of the calorimeter that after this operation there is actual increase in the production of heat. He, as well as Tscheschichin, interprets the experiment as indicating thermo-inhibitory centres above the lower border of the pons. Bruck and Günter[1] repeated and modified these experiments under Heidenhain's directions. Out of seven cases in which they separated the pons from the medulla, they observed in only two rise of temperature; of eleven cases in which they punctured the pons with a needle, in five they noted increased temperature. Heidenhain thinks these experiments indicate heat-exciting rather than heat-moderating centres, and it must be admitted that the evidence is not conclusive in support of either view.

By far the most interesting and conclusive experiments, showing the influence of the central nervous system on thermogenesis are those of Isaac Ott, followed by Richet, Aronsohn and Sachs, Baginsky, and Girard.[2] The observations of Ott, Richet, and Aronsohn and Sachs were made independently and at about the same time, but Ott was the pioneer. The experiments of Aronsohn and Sachs are reported with especial fulness and detail. These investigators found that if the skull of a rabbit be trephined at the junction of the coronal and sagittal suture, and a needle be passed vertically down so as to puncture the anterior part of the caudate nucleus near its median convexity, there follows a rise of temperature, which may amount to three degrees or more, and which may persist for two or three days. The rapidity and the duration of this elevation of temperature vary somewhat with the depth of the puncture, parts immediately beneath the caudate nucleus being also thermically active. Puncture of the overlying cortex or medullary substance has no such effect upon temperature. With the exception of some increase in the frequency of the respiration and of the pulse, the animal after puncture of the anterior median part of the caudate nucleus presents no abnormal symptom other than the rise of temperature.

I have several times repeated this experiment and always with the result described. That the pyrexia induced by puncture of the caudate nucleus is not due to vasomotor changes causing retention of heat, is proven by Richet's and Ott's calorimetric experiments, and by the determination by Aronsohn and Sachs that the consumption of oxygen and the elimination of carbonic acid, and urinary nitrogen are increased. Aronsohn and Sachs and Girard find that electrical stimulation of the anterior median part of the caudate nucleus causes the same thermic phenomena as the puncture, and they, therefore, conclude that this region contains a thermo-excitor heat centre. This is the natural interpretation of their experiment, although Baginsky and Ott regard the centre as thermo-inhibitory on grounds which cannot be considered convincing.

Ott claims that there are four cerebral heat centres, one about the corpus striatum, the second in the caudate nucleus, the third in the anterior inner end of the optic thalamus, and the fourth near the median line between the optic thalamus and the corpus striatum. The greatest rise of temperature he found after injury of the thalamic centre.

No adequate demonstration has been afforded of any influence of the cerebral hemispheres upon thermogenesis. Corin and van Beneden[1] find that pigeons, after removal of their cerebral hemispheres, exhibit no change of temperature, no failure of the heat-regulating mechanism, and no alteration in the excretion of carbonic acid.

I have endeavored to present to you the main physiological facts bearing upon the relation of the nervous system to thermogenesis. It must be admitted that we are left to surmise as to the interpretations of many of the facts, and particularly as to their connection with each other. But certain important points come out clearly. We have found evidence of the existence in the body of chemical processes resulting chiefly in the production of heat energy. We have learned that these processes are under the direct control of the nervous system, and possibly of nerves distinct from those now recognized as motor or secretory. We have seen that there are regions in the central nervous system which are doubtless in some way connected with these nerves, and through them control the chemical processes resulting in the production of heat.

The bearing of these facts upon the theory of fever is evident. The study of heat production and of heat loss in fever has led us, by arguments which need not be repeated, to the conclusion that the pyrogenic agent must in some way act upon the heat-regulating mechanism. The study of this mechanism, more particularly of its thermogenic side, affords some insight into the manner in which the fever-producing agent may affect the regulation of heat. The main difficulty in the neurotic theory of fever has been to understand how by any action of the fever-producing agent directly upon the nervous system the chemical processes leading to heat production could be stimulated. I have dwelt thus at length upon the innervation of thermogenesis to show that this difficulty has been in great part overcome.

To some it seems more reasonable to suppose that the pyrogenic agent circulating in the blood acts directly upon the tissues, altering and stimulating their chemical changes. This is the hæmic theory, which, in some form, has always stood over against the neurotic theory of fever. Although it may at first glance appear simpler, the hæmic theory is really the more complicated, for it has already been set forth that we cannot explain fever simply by increased heat production, so that even if the primary effect of the fever agent were upon the heat-pro-

[1] Bruck and Günter: Pflüger's Archiv, Bd. iii.

[2] Ott: Journal of Nervous and Mental Diseases, April, 1884; MEDICAL NEWS, July, 1885. Therapeutic Gazette, Sept. 1887. Richet: Arch. de Phys., 1884. Aronsohn and Sachs: Pflüger's Archiv, Bd. 37. Baginsky and Lehman, Virchow's Archiv, Bd. 106. Girard: Arch. de Phys., 1886.

[1] Corin and van Beneden: Arch. de Biol., 1887.

ducing processes there must be a secondary influence upon the nervous system, for heat dissipation is no less disturbed than heat production.

If an animal be thoroughly curarized so that no impulses from the nervous centres can reach the muscles, the great heat producers, then it is found to be impossible to produce febrile elevation of temperature by the injection of pyrogenic agents. This fact, first demonstrated by Zuntz, is justly held to weigh heavily in favor of the neurotic theory of fever.

Contrary to the results of Murri,[1] I have not been able to induce rise of temperature or check its fall by the injection of pyrogenic agents into the jugular veins of dogs whose spinal cords have been cut in the lower cervical region. In these experiments I have employed various pyrogenic agents, and especially pepsin and papoid. One specimen of the latter which I used possessed very striking pyrogenic properties.

The pyrexia produced by puncture of the caudate nucleus in the manner already described, possesses all of the essential properties of fever, regarded as abnormal elevation of temperature. In this experimental condition there are increased production of heat, increased dissipation of heat, excessive elimination of urea and of carbonic acid, and excessive absorption of oxygen. The breathing and the pulse are increased in frequency. The elevation of temperature (usually after a brief fall) begins within half an hour after the puncture, attains a febrile height and persists sometimes for days. As no observations exist as to the heat regulation of these animals, I have made experiments on rabbits after puncture of the caudate nucleus, by placing them in a cold environment and in a box heated to various temperatures, and I find that their power of temperature regulation is less than that of normal animals.

These animals, in a word, present all of the essential symptoms of fever, and I do not know why we should not call the condition fever. If so, we must admit that injury to a circumscribed definite region of the brain is capable of causing fever. This experiment, therefore, is of the greatest importance in support of the neurotic doctrine of fever. It indicates, of course, that we may have fever of purely nervous orgin, without any pyrogenic agent in the blood. This experimental evidence is supported by the clinical cases collected by White in *Guy's Hospital Reports*, 1884. It is to be hoped that by careful thermometric study of focal brain and cord lesions a more accurate idea may be reached than is now possible of the topography of the thermically active regions in the central nervous system of man.

Admitting the dependence of fever upon the nervous system, I do not regard as particularly profitable with our present knowledge the discussion as to whether febrile thermogenesis is excited by the withdrawal of thermo-inhibitory impulses or by the stimulation of thermo-excitory nerves or nerve centres. If we regard, and there are forcible arguments for doing so, possible heat-inhibitory nerves as anabolic, and the heat-exciting nerves as katabolic, then inasmuch as the formative or anabolic processes are manifestly in abeyance in fever, we can reasonably infer that the function of the heat inhibitory nerves or centres is impaired. The phenomena of the febrile chill in which both the contractile and the thermogenic properties of muscle are stimulated, speak strongly in favor of direct irritation of the heat-exciting nerves in fever. We might infer, therefore, that both sets of nerves or nerve centres are affected.

But my aim in this lecture has been not so much to construct a theory of fever, a theory which, although it may be useful, must necessarily be largely speculative if it be coherent and rounded, but to bring before you the main facts concerning heat production, heat loss, and heat regulation in fever, and to point out the physiological basis on which their solution is to be expected.

[1] Murri: Teoria della Febbra, Fermo, 1874.

LECTURE II.

Delivered April 5th.

THE EFFECTS OF INCREASED TEMPERATURE OF THE BODY.

In the last lecture I endeavored to bring before you the main facts which we possess bearing upon the explanation of febrile rise of temperature. After a review of our knowledge concerning heat production, heat dissipation, and heat regulation in fever, we were led to the conclusion that neither the changes hitherto observed in the production of heat nor those in the loss of heat suffice to explain febrile temperatures. Such an explanation seemed possible only upon the assumption that the fever-producing agents act either directly or indirectly upon the nervous mechanism controlling the relations to each other of the production and the discharge of heat. We then turned our attention to the relations of the nervous system to these processes, and found that the investigations of recent years have enabled us to obtain a much clearer conception than was formerly possible, of the manner in which the complicated heat relations in fever may be brought about by an action upon the nervous system. We found even substantial experimental basis in support of clinical facts which show that circumscribed lesions of certain parts of the central nervous system may induce directly febrile disturbances of animal heat.

To carry the subject further, to consider whether pyrogenic agents act primarily or only secondarily upon the processes concerned in heat production or upon those concerned in heat dissipation, or upon the apparatus regulating the relations to each other of these two sets of processes, to discuss whether these agents act directly upon the central nervous system, and if so upon what part; or upon the peripheral nerves or their terminations, or upon the tissues; to follow out more fully than we have done hitherto the themes here suggested would lead us with our present knowledge into a sea of speculation. We should find only here and there a faint light of fact to guide us. Even upon foundations as insecure as this speculations have their legitimate uses. A good hypothesis is a most valuable incentive to scientific work. It is not my purpose, however, to carry you with me further in this direction, although I realize that a single lecture has been far from sufficient for a thorough exposition of this subject.

After dismissing the considerations bearing upon the so-called theory of fever, there still remains a host of questions properly belonging to our subject. It is evidently impossible, even if it were desirable, that these lectures should include a discussion of all of these questions. I have, therefore, selected certain ones, partly be-

cause they seem to me of immediate interest and partly because I have given some attention to their study.

In the present lecture I wish to present to you some observations concerning the relation of elevation of temperature to other disorders of fever, and as to the question how far increased temperature is a source of danger in fever?

Here I may repeat that the word fever is used as a convenient name for a group of symptoms commonly associated together in febrile diseases. The association of these symptoms, however, is so loose that we regard only the dominant one—the increased temperature—as the essential criterion of the existence of fever. It saves circumlocution to adopt this somewhat vague and common signification of the term fever, although I think it would be an improvement to confine the term to abnormal elevation of temperature. The literature of fever is full of misapprehensions resulting from the various meanings attached to the word by different authors.

All of the bodily functions may be disordered in fevers. The various symptoms or classes of symptoms which are so commonly associated as to be regarded by many as belonging to the febrile process are, in addition to heightened temperature, increased frequency of the pulse and other circulatory disturbances, increased rapidity of respiration, muscular weakness, lessened secretions, disordered nutrition and digestion, and nervous symptoms.

What is the connection, if any, between these symptoms and the elevation of temperature? What degrees of elevated temperature are dangerous to life, and in what does the danger consist? This subject can, at least, claim the interest that attaches to the questions of the day. The various opinions which have been held by clinicians on these points are too well known to you to require an historical review. I need only remind you that until within a few years the views advocated with especial force for nearly thirty years by Liebermeister have prevailed, although not without considerable opposition. According to these views, the chief source of danger in uncomplicated essential fevers is the elevation of temperature, and the main indication for treatment is the reduction of temperature. Above all, it was urged with apparently convincing arguments that the weakness of the heart, which is undoubtedly one of the gravest dangers of fevers, is the direct effect of prolonged high temperature, and is manifested anatomically by parenchymatous or fatty degeneration of the cardiac muscle. Liebermeister sharply defined his position when he said, "A man whose temperature measures continuously 104° (40° C.) or more surely dies in consequence of the elevation of temperature, one in a few days, another after a somewhat longer time, according to the resistance of the individual." "If his temperature reaches 108.5° (42.5° C.) or more, then is he irrecoverably lost."[1]

At the present moment there is a decided reaction against these views, a reaction which in some quarters goes to the extent not only of denying that there is danger in febrile temperatures which do not exceed a very high point, but of asserting that the elevation of temperature is a beneficent provision, a most important *vis medicatrix naturæ*, which should not be checked by the interference of the physician. This reaction of opinion is plainly due, in great part, to the disappointment which has followed the high hopes raised by the discovery of a number of drugs which are admirable antithermic agents and, nevertheless, do not exert over febrile diseases that controlling influence which had been anticipated.

These questions, you may say, are clinical ones, and not much edification is to be expected from their discussion by a pathologist. So far as the propriety of the use of antipyretic agents or of any other mode of treatment in fever is concerned, it is true that the decision must be reached at the bedside and cannot and never should be controlled by the results of experimental pathology. But an appeal has properly been made to experimental pathology to shed light upon such questions as the effects of heat upon the functions of the whole body and of its various organs, and upon the causes of parenchymatous and fatty degenerations. The arguments advanced in support of the view that all of the characteristic symptoms of fever are directly dependent upon the increase of temperature and that high temperature is the chief source of danger, are derived no less from experimental pathology than from clinical observations.

Three methods have been employed to determine the effects of increased temperature in fever: one is to study the effects of external heat upon man and animals; the second is to examine in different fevers and in different cases of the same fever the relation of the temperature to the other symptoms, and to the general condition of the patient; and the third is to note the influence of reduction of temperature upon these symptoms. Each method has its limitations.

The condition produced by exposure to external heat, even if it be called thermic fever, is something quite different from ordinary fevers, and we cannot transfer the results obtained by this method directly to the explanation of febrile phenomena. On the other hand, in the clinical study of fevers it is very difficult and often an arbitrary matter to separate the effects of increased temperature from those of other factors nearly always present. Hence we find no agreement of opinion among physicians as to what symptoms or lesions in fever are referable to the heightened temperature, and what are due to infectious or other conditions often present. Even the frequent or constant association of certain symptoms with elevated temperatures and their subsidence or disappearance by reduction of temperature do not justify us in inferring that the high temperature is the cause of the symptoms, for both may be coördinate effects of the same cause, and the so-called antipyretic treatment may influence other conditions as well as the temperature. As has been frequently said of late, the high temperature may be rather an index of the severity of the disease than a source of danger in itself.

In hyperpyrexia and in many cases of insolation there can be no doubt that the high temperatures, as such, are the main elements of danger. But both of these conditions have important points of distinction from ordinary febrile processes. In hyperpyrexia there is probably almost complete paralysis of heat regulation, and we shall find that an analogous condition with similar dangers sometimes develops in animals artificially heated. The cases of insolation in which the high temperature is so dangerous are analogous to the condition which may be produced in animals by brusque elevation of the bodily temperature through exposure to heat, and which

[1] Liebermeister: Volkmann's Sammlung, No. 31, p. 240.

differs from that resulting from more gradual increase of temperature.

The most direct way of determining the influence of heat upon the body is to raise the internal temperature by the external application of heat. Here we are not disturbed by the presence of other factors, such as infection, which render doubtful so many of the conclusions derived from clinical observations as to the effects of high temperatures. For the solution of many problems it is evidently irrelevant whether the source of heat be within or without the body.

These experiments, if properly conducted, are calculated to shed much light upon many questions relating to the effects of febrile temperatures.

According to the testimony of all experimenters, a mammalian animal, artificially heated, dies when its internal temperature reaches 111.2° F. (44° C.) or 113° F. (45° C.). Death is preceded by convulsions and immediately or soon after death rigor mortis appears. At the moment of death the irritability of the heart and muscles ceases. Death seems to be due to heart paralysis, and the cause of this is usually set down as heat rigor, but this is not probable as death generally occurs at a temperature several degrees below that at which rigor of the heart muscle appears.

It is generally argued that temperatures several degrees below those which are fatal must exert toxic effects, and this conclusion seemed to be substantiated by the majority of experimenters, who found that animals whose temperatures were artificially raised to 105° F. (40.5° C.) or 107° F. (41.7° C.), or even to a lower point, manifested signs of illness. These latter results, however, are opposed to those obtained by Rosenthal, and especially Naunyn,[1] who points out that the conditions in most previous experiments were not favorable, as the animals were generally placed in small, dark, poorly ventilated metallic boxes. Naunyn succeeded in keeping a rabbit alive for thirteen days with an average temperature of 106.7° F. (41.5° C.).

Following Naunyn's example, I have had constructed a wooden box, three feet long, two feet high, and two feet broad, which fits closely within a double-walled galvanized iron box. The wooden box is provided with a perforated movable bottom, which allows the urine to escape. The space between the two walls of the iron box measures three inches across, and is filled with water, which, therefore, surrounds the inner box on all sides, except at the top, which is left open. The dimensions of this apparatus are somewhat larger than those of Naunyn's heating-box. A folded woollen blanket was drawn over each end of the box, so as to leave uncovered at least one-third, and generally more of the top. A rose burner placed underneath served to heat the box. At first a thermo-regulator was employed, but this was found unnecessary, as the temperature of the room varied but little, and there was no difficulty in keeping a sufficiently constant temperature in the box. The experiments were made upon rabbits, and only a single one was placed in the box at a time. Corrected thermometers were used. The temperature of the box was taken a short distance above the bottom, and that of the rabbit at a depth of three to four inches in the rectum. This occasion does not seem an appropriate one to describe these experiments in detail with their protocols. I shall take another opportunity for that, and at present give only a general account of those results which relate to the subject before us.

In the box described I have succeeded in keeping for three weeks two large black rabbits, the one with an average rectal temperature of 107.3° F. (41.8° C.), the other with an average temperature of 106.6° F. (41.4° C.). The rectal temperature fluctuated usually between 105.5° F. (40.8° C.) and 108° F. (42.2° C.), scarcely ever sinking below 105° F. (40.5° C.), but occasionally rising as high as 109.5° F. (43.1° C.). The temperature of the box varied between 96° F. (35.5° C.) and 106° F. (41.1° C.). The rabbits lay most of the time stretched out, breathing very rapidly. They took their food greedily, and did not appear ill. At the end of the experiment the first animal was removed from the box, and appearing perfectly well for ten days afterward it was used for another experiment; the second animal was killed at the end of the experiment, and presented marked fatty degeneration of the heart, liver, and kidneys. Both animals lost weight while in the box.

In these and similar experiments the rabbits were given only moist, green fodder, and were allowed to drink plenty of water, which they took eagerly. It is important for the success of the experiment that the temperature should be gradually, and not suddenly, raised.

Different rabbits offer varying degrees of resistance to the effects of high external temperature. It has seemed to me that black and gray rabbits surpass, in this respect, white rabbits. The same temperature of the box does not produce, in all cases, the same rectal temperature in different animals, or in the same animal at different times No factor is of more importance in determining the effects of external heat than the animal's power of temperature regulation. Failure of this power is manifested by a sudden rise of internal temperature, which may quickly attain a point incompatible with life. This event may take place without any alteration in the box temperature. The degree of internal temperature at which this paralysis of heat regulation occurs varies in different animals. One may be able to hold his temperature, for a short time, from further rise at as high a point as 109.5° F. (43.1° C.); in another, after the temperature has reached 107.6° F. (41.5° C.), there may occur, without any change in the box temperature, a sudden, and often fatal, elevation of temperature. In general, temperatures between 108° F. (42.2° C.) and 109° F. (42.8° C.) may be regarded as critical temperatures for these animals. One is forcibly reminded by these sudden and dangerous elevations of temperature of the occurrence of hyperpyrexia in certain fevers of human beings, and there is reason to believe that this, too, is caused by paralysis of heat regulation.

It seemed to me of some practical interest to determine what effect upon the rabbit's power of resisting high temperature is exerted by exhausting influences, particularly by anæmia. For this purpose rabbits which had been moderately bled, and others which had been used for some other experiments, were placed in the hot box. It was found that these animals are, although not without occasional exceptions, unmistakably less resistant to the effects of high temperatures than are robust animals. They succumb sooner, and at lower box temperatures.

We may now consider what inferences may be drawn

[1] Rosenthal: Zur Kenntniss der Wärmeregulirung u.s.w., Erlangen, 1872. Naunyn: Archiv f. exp. Path. u. Pharm., Bd. 18.

from these and similar experiments as to the effects of high bodily temperatures. It seems clear that a considerable part of the current arguments based upon experiments concerning the injurious effects of high temperatures must be revised in the light of Naunyn's experiments, and of those which I have briefly related. Because an animal may be killed by raising its temperature to 111° F. (43.9° C.), or 113° F. (45° C), it does not follow that an increase of temperature up to within 4° or 5° F. of this fatal point involves danger to life, or even any serious disturbance of the functions of the body. Although experiments in hot-air chambers show that in man brusque elevations of the temperature by only a few degrees give rise to serious symptoms, Krishaber[1] found that by habituation his temperature could be raised to 106.5° F. (41.4 C.), or 107.2° F. (41.8), without much discomfort. As small animals generally succumb more readily than large ones to artificial heating, it is not likely that the power of resistance in human beings is less than that found to exist in rabbits, and there is reason to believe that it is greater.

We cannot transfer directly to human beings the highest temperature at which we found rabbits can exist without serious discomfort save increased respiration. A rabbit's temperature is normally considerably higher than that of man, and apparently slight causes suffice to produce marked fluctuations. The normal rectal temperature of the rabbits used in my experiments was generally between 102° F. (38.9° C.) and 103° F. (39.4° C.). The highest average temperature at which a rabbit was kept for three weeks in the hot box exceeded, therefore, by 4° to 5° F. the average normal temperature. Such an increase would not correspond to a high febrile temperature in man. We can, however, with equal, and probably greater propriety, compare this temperature with that at which death surely occurs in a condition bordering on heat rigor. This temperature (111° to 113° F.) is probably about the same for man as for rabbits and other mammalians. From this point of view the inference may be drawn, although, of course, with much reserve, that human beings may tolerate temperatures of 107° F. (41.7° C.), or even higher, for a considerable time. This inference is supported by clinical observations, especially in cases of relapsing fever.

As already pointed out, the condition produced by artificial heating is not directly comparable with that in fever. In the former the loss of heat from the body is reduced to a minimum; the superficial temperature is three or more degrees higher than the internal, so that the average temperature of the whole body is higher than in fever with the same internal temperature. We cannot say, therefore, but that man may tolerate considerably higher internal temperatures when the elevation is brought about under conditions in which the discharge of heat is not checked than when the temperature is forced up by stopping heat dissipation. This would be proven if confidence could be placed in the enormous elevations of temperature reported by Teale and others. In these cases, however, even if authenticated, it is probable that heat is abnormally distributed in the body, and we cannot infer that the internal temperature is uniformly raised to such paradoxical heights.

It is of the utmost importance to bear in mind that, as my experiments have shown, not only do animals differ in their power of tolerating high temperatures of the body, but this resistance may be weakened by various depressing causes. Nothing would be more irrational than to conclude, because one individual in a certain condition can tolerate very high temperatures, another in a different condition possesses the same power. In fevers we have various factors, particularly infection, which we may well believe can lower the tolerance of high temperatures. That in some fevers, particularly relapsing fever, this does not appear, or only partially, does not disprove that in another fever, such as typhoid or pneumonia, the system may be placed by other factors of the disease in such a condition that even moderately high temperatures are injurious. It does not seem to me proper in these cases to lay, as some seem inclined to do, the sole stress upon the element of infection. This is in all likelihood the determining factor, but the practitioner cannot shut his eyes to the possibility that under its influence the high temperature, as such, is a source of danger to his patient.

With these restrictions I shall surely not be misunderstood when I assert that temperatures which are ranked as high febrile temperatures do not in themselves, independently of other factors, exert any such injurious influence as has been usually attributed to them.

Our attention up to this point has been directed to the effects of high temperatures upon the general condition of the body. It is of importance for the proper understanding of fever to determine the influence of heat upon the structure and functions of the various organs. To what extent can the febrile disorders of respiration, of circulation, of secretion, of nutrition, of innervation be attributed directly to the elevated temperature? These are questions which can be answered better by experimental methods than by clinical observation, for the latter has to deal with the effects of heat complicated by other circumstances whose influence cannot be accurately determined. The one method, however, should be made to control the other.

The most striking immediate effect of heat upon an animal is increased frequency of respiration. When a dog or a rabbit is placed in an atmosphere of 100° F. (37.8° C.), it at once begins to pant and the respiration may run up to 150° or more. The causation of this increased respiration, to which the name heat dyspnœa has been applied by Ackermann,[1] has been repeatedly investigated. Goldstein[2] in Fick's laboratory found that by applying to the carotid arteries tubes through which hot water is flowing the respirations may be greatly increased in frequency. Goldstein's experiment is usually cited as the crucial one, showing that the increased breathing is due to the effect of the heated blood upon the respiratory centres in the medulla oblongata. Sihler,[3] working in the Biological Laboratory of the Johns Hopkins University, however, has demonstrated that the increased respiration of an animal exposed to heat is due to two causes, warmed blood and stimulation of the skin by the heat, and that probaby skin stimulation is the more important factor. Some of Sihler's criticisms of Goldstein's experiments have been met by Gad and von Mertschin-

[1] Krishaber: Gaz. Méd. de Paris, 1877.

[1] Ackermann: Deutsches Archiv f. klin. Med., Bd. ii.

[2] Goldstein: Würzburger Verhandl., 1871.

[3] Sihler: Journal of Physiology, vol. ii., and Studies from the Biological Laboratory, Johns Hopkins University, Baltimore, vol. ii.

sky,[1] who have made it evident that increased temperature of the blood stimulates the respiratory centres, or increases their irritability. Section of the vagi does not check heat dyspnœa, so that this does not result primarily from the action of the increased temperature upon the terminal pulmonary expansion of these nerves. The removal of afferent impulses from the skin by section of the spinal cord does, however, exert so marked an influence that it cannot be doubted that heat stimulation of the skin is an important element in the causation. I have convinced myself of the correctness of Sihler's explanation by observing that in the hot box at temperatures of 90°–95° F. (32.2°–35° C.) rabbits often preserve their normal temperature, and still their breathing is markedly increased, and that, on the other hand, upon taking them out of the box the respirations may sink before the internal temperature begins to fall. In one striking experiment the respirations fell immediately to about normal upon removing from the hot box a rabbit whose skull had been trephined on each side of the median line, and the optic thalami punctured with a needle.

We cannot transfer directly to human beings the results of experiments on heat dyspnœa in animals, because in the latter respiration has a far more important function in temperature regulation than in the former. To keep cool a dog pants under circumstances when a man sweats. As heat regulation is largely influenced by the cutaneous temperature, it is not improbable that in man heat stimulation of the skin is less prominent than the warmed blood acting upon the respiratory centres in increasing the frequency of respiration in fever.

Inasmuch as disturbances of the heart and of the circulation in general are among the most important symptoms of fever it is natural that much attention should have been given to the study of the effects of heat upon the organs of circulation. The supposed injurious effects of prolonged high temperatures in fever have been usually attributed especially to some toxic action of heat upon the heart.

That the pulse-rate is quickened by artificially heating rabbits and dogs has long been known. The positive demonstration that this acceleration is due to the direct action of the heated blood upon the mammalian heart itself was first given by my colleague, Prof. Martin.[2] By conducting through the dog's heart, isolated physiologically by the ingenious method which he devised, Martin proved that the heart "beats quicker when supplied with warm blood and slower when cold blood is supplied to it; also, that the rate of beat depends much more upon the temperature of the blood in the coronary arteries than on its temperature in the right auricle or ventricle." These experiments make it unnecessary to recur to any action of the heated blood upon extrinsic cardiac nerves or nerve centres in order to explain the quickened pulse of fever. Moreover, Fick[3] found that the nervous centres of the heart and bloodvessels are unaffected by heating the blood flowing through the carotid arteries in the manner adopted by Goldstein in his experiments on heat dyspnœa.

[1] Gad and v. Mertschinsky: Virchow u. Hirsch's Jahresbericht, 1881, Bd. i. S. 197.

[2] Martin: The Direct Influence of Gradual Variations of Temperature upon the Rate of Beat of the Dog's Heart, Philosophical Transactions of Royal Society, part ii. 1883.

[3] Fick: Pflüger's Archiv, Bd. v.

Prof. Martin has kindly permitted me in this connection to mention certain unpublished results of experiments which he is now conducting upon the effects of heat and cold on the isolated heart. As these results are pertinent to our subject I gladly avail myself of this privilege. The table of an experiment which I have examined shows that the isolated cat's heart beats regularly and more and more rapidly as the temperature of the blood is gradually raised to 111.2° F. (44° C.). At this point the beats become irregular, but are restored to their normal rhythm by feeding the heart with cooler blood. The temperature of about 111° F. (43.9° C.) appears to be a critical one for the isolated heart. Above 111.2° (44° C.) to 113° (45° C.) the pulsations become slower instead of quicker as the temperature is raised. At 122° F. (50° C.) the heart's action ceased, but the heart was made to beat again by supplying it with cooler blood, showing that the cessation was not due to heat rigor. This interesting experiment teaches among other things that very high temperatures may produce results differing not only in degree but also in kind from those of temperatures only a degree or two lower.

We may consider it then established that increased frequency of the pulse in fever is referable to the direct action of the warmer blood on the nervo-muscular substance of the heart itself. Clinical observation of cases of fever makes it evident that there may be and often are present other circumstances which influence the rapidity of the heart's pulsations, circumstances which in themselves may slow or may quicken the pulse. Large series of statistics, therefore, are required to bring out the ratio between the pulse-rate and the temperature in fever and even then for any given temperature the maximum and the minimum pulse-rates lie so far apart that the statement of the average increase in the frequency of the pulse for each degree of rise of temperature, such as has been computed by Liebermeister, has very little value.

Not only is the pulse-rate quickened in fever, but there are often other and more serious circulatory disturbances. In the fever produced in rabbits by injection of the swine plague bacillus I find a reduction of the blood-pressure measured in the carotid artery, and others have obtained similar results in the artificial fevers of animals. The determination of the blood-pressure in fevers of human beings by means of Basch's sphygmomanometer has given, in the hands of different experimenters[1] such contradictory results, that no conclusion can be drawn, unless it be the very probable one that the blood-pressure varies, being sometimes high, sometimes low, and sometimes normal in fever. That the arterial tension is often reduced is made evident by the marked dicrotism of the pulse wave. This dicrotism, however, characterizes particularly septic and typhoid types of fever and is absent during the chill of intermittent fever and often in exanthematous and some other fevers, so that we cannot consider the blood-pressure and arterial tension as having any such definite relation to fever as does the pulse-rate.

It has been observed by Paschutin, Senator, and Mendelson,[2] that the blood pressure rises with increasing

[1] Von Basch, Zadek, Arnheim, Wetzel.

[2] Paschutin, Ludwig's Arbeiten, 1873. Senator, DuBois-Reymond's Archiv, 1883, Supplement-Band. Mendelson, On the Renal Circulation during Fever, Amer. Journ. Medical Sciences, October, 1883.

bodily temperature, produced by exposure to heat. Mendelson found that the pressure begins to sink as the temperature approaches a point incompatible with life. In these experiments the animals were subjected to rapid elevations of temperature. I find that when a rabbit is gradually and cautiously heated in the hot box used in my experiments, the rise of temperature is less marked, and may not surpass even for temperatures of 107° F. (41.7° C.), the normal limits of variation which may be found in the blood-pressure of the same animal examined at different times. These measurements, however, are not very conclusive, for, as has been already remarked, rabbits which have been operated upon do not stand well artificial heating.

I have observed that the rhythmical contractions of the bloodvessels of the rabbit's ear are feeble or absent when the temperature is much elevated by artificial heating; whereas, it will be remembered that in experimental septic fever these contractions are irregular and exaggerated.

Upon the whole, I think that we are justified in concluding that the variations of arterial tension in fevers are much less dependent upon increased temperature than upon other factors, such as infection.

But the corner-stone of the doctrine which teaches that a chief source of danger in fevers is the elevation of temperature, is not the effect of increased temperature upon the pulse-rate or the arterial pressure, but it is the belief that prolonged high temperature exerts a directly paralyzing influence upon the heart. The main support of this belief is not the admitted fact that extremely high temperatures paralyze the heart, for these critical temperatures lie far above the ordinary high temperatures of fever, and in a region where all admit the dangers of the excessive internal heat. The stately superstructure has been built up chiefly on the basis of experiments showing that when the internal temperature of animals has been maintained for some time at a high point by exposure to external heat, parenchymatous or fatty degeneration of the heart muscle ensues. It is true that all experiments are not in accord upon this point, and that, as a rule, pathological anatomists have not given adherence to the doctrine that parenchymatous degenerations are chiefly dependent upon high temperature, still this doctrine has gained a wide acceptance among clinical men, and is advocated with especial force by Liebermeister. I have, therefore, thought it desirable in my experiments to give especial attention to this question.

Among previous experimenters on artificial heating of animals, Iwaschkewitsch, Wickham Legg, and Litten may be mentioned as finding parenchymatous or fatty degeneration of the heart, liver, and kidneys; and Walther, Obernier, and Naunyn as obtaining only negative results.

It is not necessary here to enter into a criticism of these different experiments, which are of very unequal value. Litten's[1] experiments on the one side, and Naunyn's[2] on the other, appear to be the most carefully conducted. Litten, whose experiments are those usually cited, kept guinea-pigs in a double-walled metallic box which was at a constant temperature of 98.8° F. (37° C.) with dry air, or of 96.6° F. (36° C.) with moist air. He never failed to find fatty degeneration at the end of thirty-six to forty-eight hours. The liver was first affected, and then the heart and kidneys, which become fatty by the second or third day. The animals did not survive longer than five or six days, and by that time the fatty degenerations had reached an extreme degree. Von Recklinghausen[1] urges with apparent justice against these experiments that the enforced inactivity of the muscles and the imperfect ventilation may have had as much to do in causing the degenerations as had the high temperature. These objections find support in the experiments of Naunyn, who, making use of a much larger and better ventilated heating box than Litten, failed to find any parenchymatous or fatty degeneration in his rabbits after they had been exposed for two weeks to higher temperatures than Litten employed.

As my experiments confirmed in other respects Naunyn's results, I was quite unprepared to find that my rabbits, after a variable period of artificial heating quite constantly presented fatty degeneration of the heart, liver, and kidneys, and sometimes of the diaphragmatic and intercostal muscles. I never found the degeneration at so early a period as did Litten. It was not until the rabbit had been kept for at least a week with an average rectal temperature of 106° F. (41.1° C.) that the degeneration was noticed, and then only in moderate degree. The higher and the less fluctuating the internal temperature, the more certain was the degeneration to appear. I could reckon upon obtaining rabbits with well-marked fatty degeneration of the heart, by keeping them for ten days with a rectal temperature between 107° F. (41.7° C.) and 108° F. (42.2° C.). I am not prepared to account for the discrepancy in this respect between Naunyn's and my experiments. The box used was larger than that employed by him, and every care was taken to keep it well ventilated by leaving at least one-third and often one-half of the top open.

I do not think that my experiments altogether do away with the force of von Recklinghausen's criticisms. The fact that in these experiments the degeneration made its appearance at the end of a week or ten days, and in Litten's in forty-eight hours, to say nothing of Wickham Legg finding it at the end of twelve hours, would suggest that if the rabbits were heated in a still larger and better ventilated apartment, the degeneration might not occur at all, or might be deferred to a much later period. In my opinion, however, even if full allowance be made for this line of argument, we must still admit that prolonged high temperature is a factor in the causation of fatty degeneration.

That it is not the sole factor no one can doubt. As is well known, fatty degeneration is produced by anæmia and by a variety of poisons, and even in fevers most pathologists are convinced that it bears a closer relation to the kind and the degree of infection than it does to the height of the temperature. It is more frequently absent than present in pneumonia, even where there have been symptoms of heart failure.

The kind of degeneration present in my rabbits was fatty and not parenchymatous. Probably all who make many post-mortem examinations will agree with von Recklinghausen, that altogether too liberal use has been made of the diagnosis of parenchymatous degeneration,

[1] Litten, Virchow's Archiv, Bd. 70. [2] Naunyn, op. cit.

[1] Von Recklinghausen: Handb. d. Allg. Pathologie d. Kreislause u. d. Ernährung, p. 512, Stuttgart, 1883.

and not sufficient account has been taken of the anatomical changes of the parenchyma produced by post-mortem chemical changes, such as acid formation, etc.

In order to determine what influence is exerted by infection combined with high temperature, I inoculated a rabbit, which had been in the hot box for four days, with the bacilli of swine plague. These bacilli, if not identical with, are closely allied to those of rabbit septicæmia, and are extremely virulent for rabbits. In thirty-six hours the animal, which had remained at a high temperature in the box, was dead, with characteristic lesions of the disease, and the most extreme fatty degeneration of the heart and other organs was found. As in other experiments the degeneration had not made its appearance at this early date, there can be no doubt that the infection was an important element in the causation. That it received powerful support in the high temperature, however, is proven by the fact that little or no degeneration of the heart is observed after infection with this organism when the animal is kept at ordinary temperatures.

Admitting, then, that high temperature aids in the causation of fatty degeneration of the heart in fever, the question arises, What do we know of the effects of this degeneration upon the functions of the heart? I will say nothing of the growing tendency to transfer a large part of the classical symptomatology of Quain's fatty heart to other conditions, particularly to disease of the coronary arteries and chronic myocarditis; we are concerned at present only with the occurrence of this degeneration in fever. Have we not been somewhat hasty in assigning to degenerations of the heart's muscle so large a share in the production of heart failure in fevers? One cannot look at a muscular fibre in which the striated substance is all replaced by fatty globules, and suppose that its functional activity was unimpaired; but into what serious errors should we fall if we attempted to deduce from the anatomical changes in the liver cells or the renal epithelium the corresponding functional disturbances? Certain it is that symptoms which are usually considered those of heart failure are often enough present in fevers without finding at the autopsy any degeneration of the heart; and, on the other hand, such degeneration may be discovered without any history of these symptoms, although, of course, the two are often associated.

In the face of these doubts it seemed desirable to determine, if possible, experimentally the damage inflicted upon the cardiac functions by the presence of fatty degeneration of the heart muscle. That this degeneration may exist without apparent injury is rendered probable by the fact that a rabbit which has been kept for three weeks in the hot box at a high temperature, and in which there is every reason to suppose that fatty degeneration has occurred, may present no symptoms of heart paralysis, and when removed from the box appear and remain perfectly normal. An instance has already been mentioned where one rabbit at the end of three weeks was killed and presented marked fatty degeneration of the heart; and another, which had possessed a higher average rectal temperature, was removed from the box at the end of the same period, and appeared for ten days perfectly normal, when it was used for another purpose. That this degeneration can be recovered from is, moreover, rendered probable by clinical experience, and is universally admitted.

Once in teasing out, in a warm room, a bit of fatty heart muscle from one of the rabbits, I made a curious observation. Near the edge of the cover glass, where there was a slight current in the physiological salt solution, rhythmical contraction was observed in a group of muscle-fibres. This interesting spectacle could be watched under the microscope for ten minutes. These contracting fibres were filled with fatty globules, and only here and there, and then indistinctly, could any trace of striation be detected. This observation teaches that a fatty degenerated muscular fibre is capable of contraction, but, of course, warrants no further conclusions.

Far more important than any inferences which can be drawn from such observations is the measurement of the actual blood-pressure in animals whose hearts have undergone fatty degeneration. This I have done in three instances. The rabbit was removed from the box at the end of ten days to two weeks, and the pressure in the carotid artery was measured by a mercury manometer attached to Ludwig's kymograph. In no instance was the blood-pressure found to be lower than that normally present in rabbits. In an experiment recently performed, the average pressure was 125 mm. of mercury; the pulsations were regular; the heart responded to stimulation of the vagi in an entirely normal manner. After such stimulation the pressure in one case rose to 176 mm. of mercury. Immediately after the measurement of the blood-pressure the rabbit, as in the previous instances, was killed, and marked fatty degeneration of the muscular fibres was found. In many of the fibres the striation could not be made out, and only fatty globules were visible; in others, which also contained fatty granules, the striation was distinct. The degeneration involved the whole muscular substance of the heart. A similar appearance in a human heart would be considered to indicate well-marked fatty degeneration.

These experiments show that a rabbit's heart which has undergone marked fatty degeneration from exposure to heat, may perform its functions, to all appearances, and for the time being, in a perfectly normal manner.

There is at least one consideration which should make us cautious in drawing far-reaching conclusions from these experiments. There are diseases of the heart—I need only refer to lesions of the coronary arteries—in which the functions of the organ are performed for a longer or shorter time, apparently in a perfectly normal way, and then heart failure suddenly appears. It is probable that here too the blood pressure would be found normal at a certain period of the disease, and still it would be an error to suppose that the lesion does not damage the heart.

Whatever force there may be in this analogy, I still think that these experiments, as well as careful pathological and clinical observations, necessitate some revision of the current opinions concerning the significance of fatty degeneration of the heart in fever.

So much time has been devoted to a consideration of the effects of heat upon the respiration and the heart that the limits of the present lecture will permit hardly more than a summary of the effects exerted by heat upon other functions and organs of the body. On account of the great clinical importance of the subject it seemed desirable to treat with especial fulness the influence of increased temperature on the heart.

What part has increased temperature in producing febrile consumption of tissue? In the first lecture men-

tion was made of Pflüger's experiments showing that animals with elevated temperature, produced by exposure to heat, absorb more oxygen and excrete more carbonic acid than at the normal temperature. This is in conformity with the general law that within certain limits cell activity is more energetic at high than at low temperatures. It was also shown in the first lecture that only a comparatively small part of the increased oxygen absorption and carbonic acid elimination in fever can be referred to the immediate effects of high temperature. It has not been demonstrated that the respiratory gases in human beings are increased by artificial elevation of temperature. Indeed, Voit[1] was unable to find any such effect of increased temperature in human beings on the respiratory gases as both he and Pflüger observed in animals.

Inasmuch as increased disintegration of nitrogenous material is such a prominent disorder in fever, much attention has naturally been given to determining how far this can be explained by elevated temperature. That it cannot all be so explained is proven by the interesting observation of Sydney Ringer, that excessive elimination of urea antedates the rise of temperature in intermittent fever, and Naunyn has found the same to be true of the septic fever of dogs. The experiments which have been made to determine the influence of artificial heating on the amount of urea excreted by man and by animals have yielded contradictory results. A number of these experiments are of little or no value, because no attention was given to establishing beforehand nitrogen equilibrium. Schleich's[2] experiments may be mentioned as, perhaps, the most accurate of those showing an increase in the urea excreted under the influence of exposure to heat. The more recent experiments of Simanowsky[3] were made in Voit's laboratory upon a dog with especial precautions as to the establishment of nitrogen equilibrium. He failed to find any increase in the excretion of urea as the result of exposure to external heat. While then this question must be left at present *sub judice*, there can be no doubt that only a part at least of the excessive disintegration of nitrogenous substance in fever can be assigned to the influence of the increased temperature.

The loss of weight exhibited by animals kept for a long time in a hot atmosphere is usually explained by the excessive evaporation of water from the body. In many of my experiments the rabbits were freely supplied with food and water, and still the loss of weight was very noticeable. I am inclined, therefore, to attribute to the increased temperature under these conditions a decided influence upon the consumption of tissue.

Senator[4] found the urine of rabbits artificially heated to contain more albumen than is ever found in the urine of healthy rabbits. This observation I have not been able to confirm on the rabbits in my experiments, and probably this difference is to be explained by the more rapid and intense heating employed in Senator's experiments. Senator explains the heat albuminuria by the rise of arterial pressure in the renal vessels, but this is not in conformity with the interesting experiments of Mendelson,[1] who found by means of Roy's oncometer that both in thermic and in septic fevers of dogs the kidney is anæmic, while the general blood-pressure is elevated.

No satisfactory explanation has yet been offered of the diminution of perspiration which distinguishes fever so strikingly from the condition produced by exposure to high external temperatures. Luchsinger's assertion that this is the result of lessened irritability of the sweat centres in the spinal cord remains to be proven, and at the best is not a satisfying explanation.

Bokai,[2] in a recent experimental research on intestinal peristalsis in thermic and in septic fevers, comes to the conclusion that the constipation of fever is to be explained by the heated blood stimulating the nerves inhibiting intestinal peristalsis. If this should be confirmed, then it would be proven that at least three symptoms of fever, the quickened respiration and pulse and the constipation, are direct effects of elevated temperature.

When we consider the important nutritive changes in the muscles accompanying increased thermogenesis, we shall be inclined to attribute in part, at least, to these alterations and the associated abnormal innervation, rather than to increased temperature, the muscular pains and weakness which form such an early and frequent complaint in many fevers.

The investigations hitherto published of changes in the blood produced by increased temperature within febrile limits are not of sufficiently definite and satisfactory nature to warrant any consideration on the present occasion.

Nor am I acquainted with any experimental evidence (save Bokai's work already mentioned) that increased temperature is concerned in the production of the digestive disorders of fever. It has already been said that the rabbits with high internal temperatures in the hot box ate greedily, but these voracious animals cannot be considered favorable subjects to test this question.

Especial emphasis has been laid by Liebermeister and those who accept his teachings upon the dependence of the nervous symptoms of fever, particularly the so-called typhoid symptoms, on the elevation of temperature. There is, however, abundant clinical evidence to disprove this doctrine. Reference need be made only to relapsing fever, and especially to the aseptic fever described by Genzmer and Volkmann, in which there is entire absence of the whole group of so-called nervous symptoms. Moreover, Liebermeister's opinion in this respect is not supported by adequate experimental evidence. Unless the temperature of the brain or of the entire animal be brusquely raised to a high point by coarse methods, no disturbance of the cerebral functions is noticed until the temperature reaches a critical point, beyond which further increase is likely to prove rapidly fatal. At this critical point the animal, which before has lain quietly, becomes very uneasy, and if the temperature rise higher it has convulsions and coma and dies.

I have endeavored to bring before you in this lecture the experimental evidence relating to the effects of increased temperature upon the general condition of the body and upon the functions of its various organs. I have given account, as briefly as possible, of some ex-

[1] Voit: Zeitschrift für Biologie, Bd. xiv.

[2] Schleich: Arch. f. exp. Path. u. Pharm., Bd. iv.

[3] Simanowsky: Zeitschr. f. Biologie, Bd. 21.

[4] Senator: Du Bois-Reymond's Archiv, 1883, Supplement-Band.

[1] Mendelson: Op. cit.

[2] Bokai: Archiv f. exp. Path. u. Pharm., Bd. 23.

periments which perhaps shed additional light upon this important subject. In the course of this lecture emphasis has repeatedly been laid upon the necessity of controlling the results of the experimental method by clinical observation, and here and there I have endeavored to institute this control. Further than this I shall not attempt to set before you the clinical evidence regarding the effects of increased temperature in fever. There are those here more competent than I to deal with this side of the question. We may feel assured that when all the facts are before us and are properly interpreted, there can be no lack of harmony between the results of experimental and those of clinical investigations.

ORIGINAL ARTICLES.

A CASE OF CONSERVATIVE CÆSAREAN SECTION, TERMINATING IN RECOVERY.

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I DESIRE to place on record the following case of conservative Cæsarean section performed under the relative indication, and terminating in recovery, and, in passing, beg to call attention to certain points of practical interest in connection with the indication for, and the technique of the operation.

Dr. P. Dougherty, of Chicago, a short time since invited me to see in consultation a case of alleged contracted pelvis. We examined the patient in the third week of February last, and elicited the following history:

CASE.—Mrs. E. S., thirty-six years old, born in Hillesheim in the region of the Eyfel Gebirge, Rhenish Prussia, married in the United States, October, 1880, shortly after immigration. She had been a sickly child, unable to walk until her seventh year on account of *Doppelglieder—i. e.*, rachitis. During infancy she suffered from tuberculosis of the cervical glands, two depressed cicatrices being visible on the left side of the neck at the time of examination. Since her seventh year she has enjoyed robust health.

Her mother gave birth to four children, of whom three were females. All of these labors were normal. Of the patient's two sisters, one has had normal confinements, while the other has been invariably delivered with the aid of instruments.

First pregnancy; patient's first child delivered May 13, 1882. Shoulder presentation, right-scapulo-anterior position. Difficult delivery after version and decapitation. Puerperium normal.

Second pregnancy; delivery June 20, 1883. Same presentation and position as in first pregnancy. Prolapsus of funis. Version, extraction, forceps to the after-coming head. Septicæmia, puerperium six weeks.

Third pregnancy; delivery October 4, 1884. Same presentation and position as in two former pregnancies. Version, extraction, craniotomy on after-coming head. Puerperium normal.

Fourth pregnancy; induction of premature labor at the end of the seventh lunar month. Same presentation and position as before. Version and difficult extraction. Child survived the operation a few hours. Puerperium normal.

Fifth pregnancy; beginning of last menstruation June 1, 1887. *Status præsens:* The patient, of strong frame and well-developed muscles, is four feet seven inches high, and weighs one hundred and thirty-five pounds. Pregnant, near term; distance from ensiform cartilage to pubes forty-five centimetres [17½ inches]; from ensiform cartilage to umbilicus, twenty-two centimetres [8¾ inches]; circumference around umbilicus, eighty-seven centimetres [34 inches]. Shoulder presentation, right-scapulo-anterior position. Pelvic measurements:

Distance between anterior superior spinous processes	27 cm. [10½ in.].
Distance between iliac crests	27 cm. [10½ in.].
External conjugate diameter (Baudelocque)	14 cm. [5½ in.].
Distance from sacro-coccygeal joint to subpubic ligament (A. G. E. Breisky)	9 cm. [3½ in.].
Distance between the great trochanters	30 cm. [11.7 in.].
Pelvic circumference (Kiwisch)	85 cm. [33¼ in.].
Diagonal conjugate diameter	7.5 cm. [2.9 in.].
True conjugate diameter (estimated)	5.5 cm. [2.14 in.].

Diagnosis: Simple, flat rachitic pelvis, with so-called absolute contraction of the true conjugate diameter. Apart from the pelvis, the osseous system showed no marked signs of rachitis. There was no abnormal spinal curvature, antero-posterior or lateral, and the long bones were perfectly straight.

Indication.—Notwithstanding the fact that the pelvis was a typical example of the so-called absolutely contracted, simple, flat, rachitic class, the history of former deliveries demonstrated plainly that the obstacle to the escape of the child through the natural passages was only relative, and not at all insurmountable. To explain the woman's survival of former labors it is not necessary to invoke extraordinary skill upon the part of the medical attendants—in all twelve in number—nor unusual physical endurance upon the part of the patient, although both conditions were doubtless supplied. Both parents were undersized, with relatively small heads, and the children were of a size less than is common. Moreover, the after-coming head invariably presented, and the accommodation of the passenger to the passages was thus greatly facilitated. The case was clearly one in which the woman could be delivered with safety in all probability by version, extraction, and craniotomy.

On the other hand, the child was living and Cæsarean section offered the possibility of saving both mother and child, although, of course, with enormously increased maternal risk.

The question of the induction of premature labor, so late in pregnancy, was not considered for obvious reasons. In a word, the relative indication for Cæsarean section was presented.

The most important condition upon which this indication rests at the present time, is the consent of the woman, obtained without direct or indirect

coercion. Accordingly a plain, unvarnished statement of all the facts in the case was made to the woman. She was clearly and distinctly informed that by destruction of the child her life would be almost certainly saved, and that the attempt to save both lives by Cæsarean section would be attended by great danger to herself. After a week's deliberation she elected the Cæsarean operation. In reaching this conclusion, she was assisted by the Roman Catholic priest of the parish. This gentleman remarked that the pregnant woman was the aggressor, that she had made the contract of maternity; the child was passive and had made no contract. In strict equity, entirely apart from ecclesiastical considerations, the child's claims to life should be considered at least equally with those of the mother.

Of course, as an operator, I was more pleased to perform Cæsarean section than craniotomy. However, I cannot forbear to reiterate here certain convictions which must always come up for discussion in similar cases. These propositions, I beg to submit if the expression be not too harsh, not so much as matters of opinion, as matters of fact.

1. The necessary maternal mortality of craniotomy, performed under the conditions demanded in Cæsarean section, with the best instruments and adequate skill, in cases of the contracted pelvis with a *conjugata vera* of six to eight centimetres, is zero. The maternal mortality of the conservative Cæsarean section is still considerable. The shock incident to the operation, entirely apart from sepsis and the loss of blood, is an element of danger that can never be completely eliminated. It is, perhaps, needless to remark that the necessary degree of operative skill, the necessary experience in Cæsarean section, and other conditions are much more difficult to supply.

2. The consent of the patient, obtained without direct or indirect coercion, is an essential condition to the relative indication. The time will probably come when the woman shall not be permitted to elect as freely as she must be allowed to do at present.

3. The life of the adult woman, who has already contracted relations with society, is of incomparably greater value, as judged by human standards, than the problematical existence of an unborn babe. Moreover, the expectancy of life in such children is decidedly less than in children of normal birth. If the operation is performed, as in the case under consideration, before the objective changes of labor are noticeable, there is the risk of the premature interruption of pregnancy, of obviously serious prognostic moment with reference to the child. The necessary, early ligature of the cord deprives the infant of an average amount of blood of ninety-two grammes (Budin, Ribemont). The mother is seldom able, even if she were to be permitted, to suckle her child. Finally, the offspring of women affected with rachitis or osteomalacia, are frequently feeble, sickly, unable to resist the unfavorable influences of the environment, entirely apart from the effect of hereditary disease.

Operation.—The patient at once entered Mercy Hospital. The urine was examined and found to be normal. The only preparatory treatment consisted in a daily bath, in tepid water, with the liberal use of soap, which the woman's mode of life before admission rendered necessary.

In the selection of the time for operation I had determined, acting upon Schroeder's advice, to choose the latest possible moment before labor actually began. The advantage of an aseptic genital canal, daylight, adequate assistance, and the like far outweigh the danger of insufficient uterine contraction and retraction after evacuation of the viscus. Of course, one runs the risk—of moment to the child—of interrupting pregnancy some time before term. From the usual data—date of last menstruation, size and position of the uterus, abdominal measurements, length of the child measured by callipers (Ahlfeld), estimate of the size and weight of the child by palpation (Carl Braun)—it was only possible in this case to make a probable diagnosis of the time of gestation. I concluded the woman was in the last fortnight of pregnancy.

Early Tuesday morning, March 6th, she informed me that she would certainly fall in labor within the next twenty-four hours. She based her prediction upon dull pain referable to the lumbar and sacral regions, and beginning painful uterine contractions. She had been enabled to foretell her other confinements by similar sensation, and I was inclined to attach considerable importance in this case to subjective signs. The only objective change, indicative of impending labor, was a slight increase in the force of the intermittent uterine contractions; accordingly, the hour for operation was fixed upon at one in the afternoon. All precautions were taken with respect to the most thorough cleanliness and disinfection of the operator, assistants, patient, instruments, and environment. Dr. W. E. Casselberry administered the anæsthetic, ether. Dr. E. C. Dudley, Dr. Bayard Holmes, Dr. G. W. Whitfield, Dr. B. L. Riese, Dr. M. Scheuer assisted me in the operation. Dr. P. Dougherty and Dr. Charles Caldwell assumed charge of the babe. I take this opportunity to make my grateful acknowledgements to these gentlemen for their efficient services.

The woman was in excellent condition, cheerful, pulse and temperature normal.

The steps in the operation were: after evacuation of the bladder, incision through the linea alba, from the navel to a short distance above the pubes, as low down as was safe on account of the bladder. The diastasis of the recti muscles was well marked, and the peritoneum was incised without dividing much muscular tissue. No omentum nor intestines pre-

sented between the uterus and anterior abdominal wall.

The median line of the uterus coincided with the incision, and the usual manipulation to correct lateral version and axial rotation was unnecessary. Before making the incision, Dr. Holmes placed one hand on either side of the cut, and rendered the abdominal parietes tense enough to prevent the access of fluid to the peritoneal cavity. I incised the anterior uterine wall in the median line at a point a short distance above the os internum with a scalpel, and rapidly enlarged the cut in the direction of the fundus to the extent of thirteen centimetres [5 inches], with a blunt-pointed bistoury. The thickness of the uterine wall was about one centimetre [⅓ of an inch]. The placenta was implanted over the line of incision, and the first gush of blood was frightful. The placenta was quickly separated by the hand, the amnion ruptured, the child caught by the feet, turned and delivered without any laceration of the uterine incision. The amnion was not previously ruptured *per vaginam*, because I had confidence in the ability of Dr. Holmes's hands to keep blood and liquor amnii out of the peritoneal cavity. The child uttered a lusty cry upon its liberation from the cavum uteri. I had requested an assistant to insert the index finger into the upper and lower angles of the uterine wound, and bring it up close to the abdominal incision as an additional precaution against the escape of fluid into the peritoneal cavity. In the hurry of the operation this request was forgotten. After, or rather during the evacuation of the uterine contents, Dr. Holmes, by his hands over the abdomen, pressed the uterus through the abdominal incision. When the organ was entirely without the peritoneal cavity it was enveloped in hot compresses of sterilized gauze, while Dr. Riese brought the edges of the abdominal incision together and effectually prevented any intestinal protrusion.

Hemorrhage was trifling after the contraction and retraction of the uterine musculature, following the escape of the fœtus and envelope, and was now fully controlled by Dr. Holmes, who firmly compressed the lower uterine segment with the thumbs and index fingers of both hands. I did not apply the elastic ligature around the lower uterine segment before or after the uterine incision on account of the danger of paralysis of the structures at and below the point of compression, a danger to which Sänger (*Transactions of Ninth International Medical Congress*), Doléris, and others have recently called attention. The amount of blood lost during the incision need not be much greater without than with the elastic ligature. It need not be much more than the amount of blood in the uterus at the time the incision is begun, provided subsequent procedures are executed quickly. After the uterus is empty, uterine contraction and retraction, aided by digital compression, render the further loss of blood insignificant.

Twenty-one deep sutures were inserted, including all the tissues down to the mucosa. For the introduction of these sutures, I used the long, slender laparotomy needle of Thomas Keith. This needle passes with astonishing ease through the thick uterine wall, making a very small puncture, which is completely filled up with the suture material—in this case silk. After passing a finger through the cervix from above downward, the uterine cavity was irrigated with a five per cent. solution of carbolic acid, a bacillus containing ninety grains of iodoform placed within, and the wound closed. Union of the peritoneum over the line of the incision was effected by a continuous silk suture. When the two rows of sutures had been drawn taut, the uterine wound was accurately closed and perfectly dry. The uterus, in a state of normal retraction, was returned to the cavity of the abdomen. The toilet of the peritoneum was brief, as no fluid had escaped into the abdominal cavity, and the intestines had not at any time protruded. The abdominal incision was closed with interrupted silk sutures.

The duration of the operation was about one and one-fourth hours. From the extraordinarily simple *technique*, it would seem that the operation had been needlessly prolonged. But the uterine sutures were inserted deliberately and with care; then, too, time was occupied in securing retraction by the application of hot compresses.

The total amount of blood lost was not great, scarcely more than the average loss in normal labors. The chief element of danger lay in the suddenness of the loss, but no indication arose for the employment of transfusion, the apparatus for which was in readiness.

The shock from the operation was profound, but brief. The patient fully reacted within three hours. Her convalescence was uninterrupted. The pulse at seven the same evening was rapid, 120 beats to the minute, tense, and small. It became gradually less frequent, less tense, until at the expiration of the first week, it was normal. The temperature remained nearly normal, showing slight variations in the second week. These variations were attributed to several severe burns, suffered as the result of the injudicious application of hot bottles immediately after the operation. On the third day the audible escape of flatus was noted, and about the same time the patient began to void urine spontaneously.

Tympanites was notable by its absence throughout the recovery. On the fifth day, the bowels were painlessly evacuated after the exhibition of citrate of magnesia, for which the patient expressed a preference.

The patient did not vomit at all, not even when she was recovering from the anæsthetic.

The lochial discharge was slight, odorless, and ceased at the expiration of two weeks. Lactation was not established. In all former confinements, the milk secretion was abundant. The uterus underwent rapid involution, and at the time of writing the vaginal portion and vagina show few traces of recent pregnancy. The patient returned to the ward at the end of the third week.

The child was a small, but perfectly formed, and apparently mature male; weight, 3000 grammes [8¾ lbs.]; length, 49 centimetres [19$\frac{1}{16}$ inches]. The infant thrived on artificial feeding until the sixteenth day, when, after exposure to cold, it died suddenly, in a convulsion. The autopsy disclosed intense pulmonary congestion. Although the child

was apparently well nourished, it is not improbable that inanition was a predisposing factor. The death of the child was a matter of regret, apart from other considerations, on account of the possible unfavorable influence on the mother. She, however, calmly bore the loss, feeling happy that she had given birth to a living child capable of baptism.

The diameters of the fœtal head were:

Occipito-frontal .	11 centimetres	[4.29 inches].
Occipito-mental .	12 "	[4.68 "].
Biparietal .	8¾ "	[3.4 "].

The following extract from a letter recently received from Dr. Robert P. Harris, is of general interest in this connection:

"Your case makes 16 Sänger-Cæsarean sections for the United States, with 7 recoveries; and 165 for the whole Cæsarean list, with 63 women saved.

"I have 12 cases on record for the last fifteen months, with 6 women and 9 children saved; yours makes the thirteenth. There were 8 operations in 1887, all Sänger's but one, with 4 women and 5 children saved. I have 3 cases in already for this year: one each, for January, February, and March; 1 woman and 3 children saved."

2330 Indiana Avenue, Chicago, Ill.
March 31, 1888.

AN AID TO THE DIAGNOSIS OF HEMORRHAGIC PLEURISY.

By FREDERICK P. HENRY, M.D.,
LECTURER ON BLOOD DISEASES AT THE JEFFERSON MEDICAL COLLEGE.

In a case of hemorrhagic pleurisy which I recently made the subject of a clinical lecture at the Philadelphia Hospital, I derived valuable diagnostic aid from Gower's hæmoglobinometer. Having excluded aneurism, tumor, and pericarditis with large effusion, I thrust into the pleural cavity a needle attached to a hypodermatic syringe, but much longer and stronger than the one employed for medicinal purposes. The fluid withdrawn appeared to be composed largely, if not solely, of blood, but on examining it carefully with the instrument referred to, I found that the amount of blood present in the exudation was really less than one per cent. In other words, if I removed fifty ounces of the fluid, the blood contained in it would not amount to half an ounce.

Of course, the blood withdrawn from the pleura was practically outside of the body before the aspiration, but the question to determine was whether, in case of rapid reaccumulation of the fluid, the amount of blood contained in it, supposing its proportion to remain the same, would be sufficient materially to lower the vitality of an already feeble individual. I was enabled to decide this question in the negative by means of Gower's instrument, and withdrew twenty-eight ounces of fluid with marked benefit to the patient. An enumeration of the blood corpuscles in the fluid was rendered impossible by the fact that these bodies were detected with great difficulty, being completely deprived of their coloring matter, and, therefore, identical in appearance with the phantom corpuscles (*Schatten*) described by Ponfick and others in cases of hæmoglobinæmia.

I am not aware that this test has ever before been applied in this manner, but there can be no doubt that it is a valuable aid to the diagnosis of hemorrhagic pleurisy.

ANGIOMA OF THE THYMUS GLAND.

By T. P. BERENS, M.D.,
RESIDENT PHYSICIAN OF THE PHILADELPHIA HOSPITAL.

J. C., aged sixty-three years, admitted to the surgical ward of the Philadelphia Hospital, November 29, 1887. His history was as follows: Mother and father died of senility, one brother killed accidentally, one brother and sister living and healthy.

The patient had always been a healthy man, moderate drinker of beer. Denied specific disease. For nineteen years had had leg ulcers, which he attributed to an attack of erysipelas. On admission he had two small, unhealthy ulcers, one upon each tibia. These, notwithstanding their treatment, grew worse, until the man developed marked constitutional depression, with many of the symptoms of pyæmia, dying ten days after admission.

The autopsy, performed under the supervision of Dr. Osler, revealed the following: The body is that of a good-sized, well-nourished man. Ulcers on each leg. Extensive hypertrophic nævus of lower lip; simple nævus of skin covering chin, right side of face, and right ear, extending also down the sternum, spreading and gradually fading into normal skin on either side of the chest. The tongue is much enlarged, and is noted to be in an angiomatous (cavernous) condition; immediately beneath it is a teat-like process, an inch in length and an inch at the base, where it seems to spring from the tongue above the frænum, and overlapping that structure. This also is a nævus. On removal of the sternum, in the anterior mediastinum the fatty tissues are permeated by a dense plexus of veins, which extends a short distance into the neck, forming a large nævoid tumor covering over the arch of the aorta, the roots of the great vessels of the neck, and the trachea up to the thyroid gland. On dissection this mass is seen to be composed of two distinct portions, and it represents a greatly enlarged thymus gland. The gland is enveloped in a capsule, under which some of the veins are large and prominent; on section the whole gland looks like a dense angioma; a plexus of veins closely surrounds the adventitia of the aorta. The thyroid is not enlarged; veins over it look full. Dr. Dock kindly cut sections which present those appearances commonly shown in cavernous angiomata, with but few if any traces of the normal glandular structure. In the heart the valves presented a condition of acute endocarditis, the rest of the organs being apparently normal.

A careful search was made through Virchow's *Archiv*, the Virchow-Hirsch *Jahresbericht*, *Transactions of the Pathological Society of London*, and many pathologies, without finding reference to such a condition of the thymus as is here described.

MEDICAL PROGRESS.

A Compound of Sulphuric and Carbolic Acids as a Disinfectant.—Laplace, who is studying the action of various antiseptics in Koch's laboratory at Berlin, reports in the *Deutsche medizinische Wochenschrift*, No. 7, 1888, his experiments with a mixture of crude sulphuric and carbolic acids, as follows:

His attention was drawn to the preparation of this compound by the insolubility of carbolic acid in water, and the need of overcoming this difficulty. To this end he combined crude carbolic acid with crude sulphuric acid; he found that equal parts of sulphuric with equal parts of carbolic acid (twenty-five per cent. in strength) produced a blackish, syrupy substance which remained soluble on cooling, and dissolved perfectly and rapidly in water. He further tested the potency of this compound as an antiseptic upon the bacilli of anthrax. His results showed that a four per cent. watery solution of this compound destroyed the virulence of anthrax in forty-eight hours.

Creolin, a recently tested antiseptic, is impotent in solutions of two per cent., to destroy anthrax; the acidified solutions of corrosive sublimate (1 to 1000) are potent against anthrax, but are not so available in practice. The cheapness of sulpho-carbolic acid, as Laplace styles this compound, and its availability for practical uses render these investigations of value.

Inflammation Masking Cancer.—Dr. Orecchia has recently called attention (*Gazzeta degli Ospitali*, March 4, 1888) to the frequent combination of inflammation with cancer in the same part, the graver disease being sometimes so obscured in this way as to be overlooked for a considerable time. He reports six cases in which this occurred. In one of these cancer of the larynx was supposed to be nothing more than perichondritis; in two, malignant disease of the jaw was mistaken for osteitis; in another periproctitis for some time masked a rectal cancer; parotitis concealed cancer or sarcoma of the parotid; and simple inflammation of the lip, an epithelioma. The possibility of malignant disease underlying what appears to be a simple inflammatory process should never be forgotten when the age and appearance of the patient, and the part affected, are such as to make the existence of carcinoma probable. Dr. Orecchia believes that in these cases the cancer is the primary disease, which, owing to the slightness of the symptoms, remains unnoticed till the supervention of inflammation calls attention to the part. In the stroma of all the tumors referred to, Dr. Orecchia found much extravasated blood, with abundance of leucocytes, of which there were also a great number in the neighboring tissues.—*British Medical Journal*, March 10, 1888.

Poisoning with Anilin Oil.—Dehio in the *Berliner klin. Wochenschrift*, No. 1, 1888, reports the case of a woman just recovered from childbirth, who took two and a half drachms of anilin oil with suicidal intent; the oil was used ordinarily to stain microscopic specimens. Coma, cyanosis, and profound depression followed. The skin was colored a grayish-blue, and intense hæmatogenic icterus followed, with extensive decomposition of the blood. Convalescence was tardy, recovery followed in about a month.

The Treatment of Convulsions in Children.—Simon has found the following, by rectal injection, most useful:

Chloral hydrat.	gr. 15.
Tinct. mosch.	gtt. 20.
Aquæ	ʒ 12½ to 15.

This may be given in two rectal injections, care being exercised to avoid violence, which may irritate or injure the bowel.—*Gazette Médicale*, March 3, 1888.

Multiple Salivary Calculi.—Dr. Nikolai J. Moiseëff, of Shtchizry, reports (*Proceedings of the Shtchizry Medical Society*, 1887, vol. i. p. 68) the case of a retired major-general, aged seventy, who sought his advice on account of incessant profuse salivation, pain on deglutition, and sublingual swelling of several years' standing. An oblong, hard elevation was found along the course of Bartholin's duct, which, even on slight pressure, gave the finger a distinct grating sensation. The duct was considerably distended along its whole course, and contained three salivary calculi lying in close contact. The nearest and smallest concretion, of the size of a big pea, was easily removed with forceps, but the other two could be extracted only after slitting up the duct, since they were considerably larger, especially the deepest one, which measured ¾ of an inch in length and ⅜ in breadth, and in addition was intimately adherent to the gland substance; it resembled a bird's bill in shape. When dry it weighed 33 grains, and consisted of a comparatively hard and compact nucleus, with a spongy, friable outer capsule. The smallest calculus was of a pyramidal form, of spongy consistence, and a grayish-yellow color; while the middle one was quadrangular, with rounded angles, and of a distinctly laminated structure. The total weight of the dried calculi was 38 grains. The wound healed well in a week. Dr. Moïsëëff has been unable to find another recorded instance of multiple calculi simultaneously present in the same salivary duct.—*British Medical Journal*, March 10, 1888.

The Reduction of Ferric Chloride by Pepsin and Allied Substances.—Duncan writes as follows on this subject to the *Chemist and Druggist*:

To the fact that the old tinct. ferri muriatis of the Edinburgh *Pharmacopœia* always contains ferrous chloride, is ascribed its alleged superior efficacy to the tincture of the present pharmacopœia. The following experiments which I have made seem to favor this view, and bear out a theory that ferric salts are reduced in the alimentary canal before absorption, and that their therapeutic value is in direct proportion to the amount of this reduction. Two grains of pepsin, B. P., were shaken up with 100 minims of water, and 10 minims of liq. ferri perchloridi, B. P. (free from ferrous salt), added, the whole being well shaken together. After standing for five minutes, 10 minims of two per cent. potassium ferridcyanide solution were added, when a blue color was

at once developed, showing that reduction of the ferric chloride had taken place. The same experiment was repeated with eight different samples of pepsin, all of which gave a similar result. With some, however, the reduction seemed greater than in other cases. It was also noticed that it increases with the length of time the pepsin and iron are left in contact. A control experiment was made in each case with pepsin and ferridcyanide, but in only one case was any blue color developed, and this most probably was due to an impure hydrochloric acid having been used in making the pepsin preparation. The ferridcyanide apparently does not undergo reduction, as the mixture does not become blue on the addition of a drop of pure ferric acetate solution. Possibly an albuminoid compound may be formed with the iron and pepsin, the iron being reduced during the combination; but I could find no evidence of such reduction with white of egg and ferric chloride. Similar results to these obtained with pepsin were given with ox-gall, pancreatin, papain, and saliva. The same experiments were made with liq. ferri acetatis and liq. ferri dialysatus. The former showed a slight reduction, the latter none at all, even after standing in contact with the pepsin for twenty-four hours. It is generally recognized that ferric acetate is less active therapeutically than ferric chloride, and dialyzed iron is least active of all, some therapeutists even denying that it has any efficacy, and this is apparently quite in accordance with the foregoing results. I do not regard these experiments as conclusive or complete, but the results are suggestive, and, as such, I record them, hoping that the investigation will be carried further.

The Treatment of Phlyctenular Keratitis in Children.—TROUSSEAU, in the *Revue Gén. de Clin. et de Thér.* of March 8, 1888, reports that he obtains good results from the following:

Vaselin	gr. 75.
Hydrarg. ox. flav.	gr. 3¾.

Once daily a bit of this ointment as large as a grain of wheat should be introduced into the eye. Three times daily compresses wet in a warm solution of boric acid should be placed upon the eyes for a quarter of an hour:

Acid. boric.	ʒ 3.
Aquæ	ʒ 11.

Trousseau classifies keratitis and its treatment as follows: Keratitis phlyctenular, superficial and vascular, and corneal opacities may be treated with the yellow oxide of mercury. Certain superficial keratites, corneal ulcers, and abscesses, call for eserine. In cases of parenchymatous keratitis atropia should be employed.

Ligature of the Superficial Femoral Artery, without Rupture of its Coats.—LUNN, at a recent meeting of the Clinical Society of London, reported the following interesting case:

C. W., æt. forty-five, widow, occupation a needle woman, was admitted May, 1887, into St. Marylebone Infirmary, Notting Hill, with pulsating tumor in the right popliteal space. No history could be obtained of a blow, strain, or syphilis, etc. The urine contained no albumen. She noticed a pulsating swelling about the size of an egg behind the right leg in the popliteal space, which gradually enlarged, and she was obliged to give up her work. The circumference of the pulsating tumor measured sixteen and a half inches. After giving a fair trial to different methods of treatment, and having failed to make any impression upon the aneurism, it remained only for me to advise the patient to submit to the usual operation of ligature of the superficial femoral artery, which she consented to do. The usual antiseptic precautions were taken; when the sheath of the artery was opened, the vessel wall was noticed to be a tallowy color, and not the usual pinkish tinge of health. Wishing to try Mr. John Smith's suggestion, and ligate the vessel with a clove-hitch, and as Mr. Ballance had had some experience of the clove-hitch in his as yet unpublished experiments on the carotids of horses and asses, I asked him to pass the kangaroo tendon, and occlude the vessel by means of a clove-hitch without rupturing the coats. This he did. The pulsation of the tumor was arrested immediately, and the woman made an uninterrupted and perfect recovery. The patient was kept in bed for seventy-two days after the operation. "The case is offered to this society as a contribution in aid of the advance of our knowledge of the surgery of our arteries."—*Medical Press*, February 29, 1888.

The Bacillus of Indigo.—The indigo of commerce is produced by the precipitation of a colorless glucoside contained in certain leguminous plants. This precipitation and the formation of the blue color of the indigo are effected, ALVAREZ believes, by a bacillus which causes a fermentation in the plant. This germ resembles that of pneumonia and of rhino-scleroma; and when injected into living organisms produces inflammation, especially of the genito-urinary tract.—*Revue de Clin. et de Thér.*, March 8, 1888.

A Physician's Experience in Self-treatment of Phthisis with Creasote.—The *British Medical Journal* of March 10, 1888, quotes the experience of a Russian physician as follows: The writer, who has been suffering from pulmonary and laryngeal tuberculosis for about two years, had tried the drug on himself in small doses (half a grain four or five times a day) some time ago, but without appreciable benefit. After perusal of the observations of Professors Sommerbrodt (*Berlin. klin. Wochenschrift*, No. 15, 1887) and Guttmann (*Deutsche med. Zeit.*, No. 42, 1887), however, he again began to take creasote in gradually increasing large doses, beginning with four grains a day, and reaching, in about two months, a daily dose of forty-four grains. There took place, fairly rapidly, an unmistakable and permanent improvement in his symptoms. Fever disappeared in a week; expectoration, cough, and dyspnœa steadily decreased to a considerable degree; laryngeal spasm, which had formerly occurred once or twice every month, ceased altogether. As regards the objective signs, however, there was only some diminution of dulness over a certain area, with complete disappearance of fine crepitant *râles*. As to tubercle bacilli in the sputum, they remained just as numerous as before the creasote treatment. The latter has lasted in all four months, during which period not less than four ounces and two drachms of pure creasote have been ingested. The drug must be taken in doses of about five grains four times daily, in the form of capsules (filled up *ex tempore*), after meals. With regard to

disagreeable after-effects Dr. Bogdanovitch observed in himself, when, by way of experiment, he took as much as twelve grains at a time, or twenty grains in the course of an hour, only giddiness, cardiac palpitation, small and accelerated pulse, general weakness, pallor, and anxiety; but all these toxic phenomena disappeared spontaneously and completely in about half an hour or an hour. On an empty stomach, however, he experienced epigastric uneasiness and pain even from small doses. Dr. Bogdanovitch resumed of late the use of creasote in order to study the effect of a six months' course.

Formulæ for Caustic Crayons.—De Sinéty gives the following formulæ, in *L'Union Médicale* of March 17, 1888:

Acid. carbolic. cryst.	gr. ¾.
Tannin.	gr. 60.
Glycerin.	gtt. 5.
Gum. tragacanth.	q. s.

These crayons should be about one inch long, and one-eighth of an inch in diameter.

The Contamination of Vaccine Matter by Micro-parasites.—Pourquier, in a recent communication to the Paris Academy of Sciences, reports his conclusions from several years' study of vaccine virus, which have led him to believe that ill results from such virus depend largely upon its contamination by a micro-parasite. He concludes that whenever the field of vaccination in a heifer presents an unduly inflamed and unhealthy appearance, the animal should no longer be used for that purpose. It may happen that but a portion of the surface used in an animal is affected; only the healthy pustules should then be chosen. Rigid antisepsis is imperative in instruments, the care of the animal and all concerned in its abode and treatment. If the micro-parasite enters a stable infecting a herd, the stable should be most carefully disinfected to limit and abolish the mischief.—*Gazette Hebdomadaire*, March 9, 1888.

Cocaine in Tooth Extraction.—The employment of certain salts of cocaine, and even the alkaloid itself, in dental surgery, has now received a fairly wide trial. It must be confessed that authorities here and abroad have arrived at very various results, some averring that cocaine is in all cases successful, while others have relinquished its use. To reconcile these discordant statements is at present quite impossible; we can only indicate the best means of applying this anæsthetic, and warn against its indiscriminate use. As a rule, from half a grain to a grain of the hydrochlorate dissolved in ten minims of water, and injected into the tissue of the gum by two punctures, one on the lingual and one on the buccal aspect of the tooth, insures a painless extraction. It is best to inject very slowly, and to wait from five to ten minutes after the completion of the last injection before extracting. However, in some persons cocaine fails entirely; nor is it possible to anticipate in whom it will succeed or in whom it will prove abortive. Simply painting the gum is valueless in tooth-extraction, except as a preliminary to the punctures of the hypodermatic syringe, for some persons are as much afraid of the pain incident to the pricking the hyperæmic gum as they are of the more severe operation. Although many persons experience no unpleasant effects from the injection of one grain, yet a certain proportion are painfully and alarmingly upset by its action. Syncope, extreme respiratory distress, feelings of complete prostration lasting for hours, vomiting, great nausea, facial paralysis, muscular paresis, and swelling of the tongue may ensue; thick utterance has been present in many cases; while vertigo, headache, and hallucinations are not uncommon sequelæ of cocaine given hypodermically. As a rule, these symptoms, although very alarming at the time, pass off in a few hours, but may persist for days. Cocaine sometimes loses its anæsthetic powers after the first injection. Many do not recommend cocaine for prolonged dental operations, preferring nitrous oxide gas, which is sure and safe, for short procedures, while others lean to a combination of the two agents.—*Lancet*, March 17, 1888.

A Good Domestic Disinfectant.—The *American Druggist* recommends the following solution:

Sulphate of zinc, commercial .	16 tr. oz.
Sulphate of iron, crystallized .	16 tr. oz.
Hypophosphorous acid (10 per ct.)	120 minims.
Oil of thyme	60 minims.
Naphthol	15 grains.
Water . . enough to make	5 pints.

Dissolve the two salts in four pints of boiling water, add the naphthol, and the oil of thyme, and shake or stir the mixture frequently while it cools. Then add the hypophosphorous acid, and make up the volume, with water, to five pints. Shake or stir the mixture frequently during a few days, then filter it through a wetted filter.

This solution will have a very handsome green color, and resist oxidation for a long time.

For use, it may be directed to be diluted with from five to ten parts of water, the strength depending upon the work it is expected to do.

Tannin Wool.—Benjamin Ward Richardson writes in the *Asclepiad*, No. 17, 1888, that in treating ozæna and other diseases attended with fetid odors, tannin wool turns out to be of great practical service. I had thought that the manufacture of this preparation had become a general fact; but as many medical friends have at various times written for the method, it may be of service to give the details here.

To make tannin wool, add to distilled water heated to 140° F. pure tannin up to saturation, stirring carefully all the time. When the water is saturated, add to it pure cotton wool, bit by bit, until all the solution is taken up by the wool. Lastly, put the saturated wool in an evaporating dish, and dry it slowly until it is quite dry. It is then ready for use, but must always be kept in a closed bottle. It must be neatly teased out before being used; but it is well to keep it in the rough state.

A good stock of tannin wool is at all times a useful thing to keep at hand. It is a ready styptic and possesses good antiseptic properties. It can easily be iodized by making an ethereal solution of iodine, saturating a portion of the cotton with the solution, and allowing the ether to evaporate. One grain of iodine to an ounce of the cotton is sufficient to make a very good specimen; and an iodized cotton made in this proportion is one of the best applications for bedsores that can be adopted. It rarely irritates, it removes odor, and often favors the healing of the sore.

Anthrarobin in the Treatment of Skin Diseases.—At a recent meeting of the Berlin Medical Society, BEHREND reported that he had used anthrarobin in cases where chrysarobin and pyrogallic acid were commonly used, with good results. Anthrarobin is a whitish-yellow powder, sparingly soluble in water, soluble in ten parts of glycerine at 212° F., in ten parts of cold, absolute alcohol and five parts of warm alcohol. It makes a good ointment with oil, and was used in ointments of ten and twenty per cent., in a tincture of ten per cent., and a glycerine solution of ten per cent. Anthrarobin is less irritating than chrysarobin, and can be used upon the face and eyelids. It colors the skin yellow, and a burning sensation follows its first application, which does not generally persist. It is well to precede the use of anthrarobin by the use of green soap, which will remove any obstacles to the action of the medicament. The effect of anthrarobin lasts longer than that of chrysarobin, and it is considerably cheaper. It is more potent than pyrogallic acid.—*Deutsche med. Wochenschrift*, March 8, 1888.

An Application for Sore Nipples.—SCARFF, in the *Maryland Medical Journal*, prescribes the following:

Balsam of Peru,		
Tr. arnica	āā	℥ss.
Expressed oil of almond,		
Lime water	āā	ℨss.

Mix. Shake well, and apply to inflamed nipples with a camel's-hair brush, after cleansing them with borax and water.

An Urea Centre.—The *Lancet* writes that in the animal economy centralization is carried to its most extreme degree. It is certain, from Brown-Séquard's experiments, that there exists a centre irritation of which can suspend the chemistry of the body, making the blood in the veins flow red and reducing the temperature of the body. MM. Sée and Gley, experimenting on dogs with a view to producing glycosuria, caused azoturia by irritating the central end of the divided right vagus with a mixture of glycerine, water, and lycopodium injected into that part of the nerve after section.

Glycerite of Bichloride of Mercury for Antiseptic Use.—The *American Druggist* writes that there has been for a long time prepared for use in the public hospitals in New York, a glycerite of bichloride of mercury, containing one grain of the salt in every two minims. In addition, there is about a quarter of a grain of chloride of sodium in this quantity. When this solution is made, there is always a more or less decided formation of calomel (which is, however, greatly diminished by the use of the chloride of sodium). In order to make the final product as accurate in proportions as possible, the original solution is made somewhat stronger, and then allowed to become perfectly clear by standing, the clear liquid is poured off and, having added alcohol to the residuary portion, this is passed through a filter. The calomel retained by this is washed and dried. Making allowance for the amount of bichloride hereby lost from the original amount, the product is adjusted so that it will represent one grain of the mercurial salt in two minims. It is advisable to take about one-sixteenth part more of bichloride, at the start, than is theoretically required, so as to leave a sufficient margin for dilution. Such a solution, *slightly tinted with fuchsine*, would be very handy for carrying about with the field hospitals and medicine chests.

Purpura Hæmorrhagica Caused by Mental Shock.—DR. ED. DE SMET of Brussels, has recently had a case of a young woman of a highly nervous temperament who, in consequence of severe fright, experienced an eruption of purpura hæmorrhagica, though she had never had any eruption of the kind before. Some four months subsequently, however, in consequence of a fall, a similar eruption made its appearance. The treatment was directed mainly to the nervous system, which was evidently very much affected. Dr. de Smet refers to M. Lenoir of Lille, who has published cases of various skin diseases—eczema, psoriasis, herpes, pemphigus, and vitiligo—which have followed a mental shock.—*Lancet*, March 17, 1888.

The Treatment of Epithelioma by Chlorate of Potassium.—The Paris correspondent of the *British Medical Journal* of March 17, 1888, writes that DR. HYVERNAUD has treated sixty-three cases of epithelioma by local applications of chlorate of potash; of these, thirty-two were cured, fifteen were benefited, and sixteen cases were unrelieved. In the successful cases, the disease was situated on the skin of the face, nose, eyelids, cheeks, neck, in the lumbar region, on the back of the hand, and on the inner surface of the leg. Chlorate of potash fails as a rule when the mucous membrane is the seat of disease, although two cases of epithelioma of the lips and nostril were cured by it. It is especially useful when the affection is slow in its progress. A six per cent. solution slightly heated, or a fine powder of chlorate of potash, is applied to the wound, after it has been freed from scabs. The dressing is renewed once a day, or oftener. The effect of the solution is chiefly to heal the wound, while the powder slightly cauterizes it. The surface of the tumor or ulcer is thus destroyed, small eschars come away, and cicatrization ensues. In most cases, several weeks, or even months, are required to obtain complete cicatrization.

A Convenient Solution of Saccharin.—CHAMBERLIN, in the *Australian Journal of Pharmacy*, No. 26, 1888, reports the following convenient preparation of saccharin:

I have, as a sample, produced the following, and found it makes a pleasing reliable solution: Saccharin, gr. 80; potass. bicarb., gr. 40. Mix intimately in glass mortar. Add glycerine, ℥iss; aq. destil., ℥iss. Allow escape of carbonic acid, transfer to flask, and melt gently in water bath. This contains about gr. 1 in min. 20, sufficient for a cupful of milk.

Geranium Maculatum in Chronic Bronchitis.—The *Journal de Médecine* of March 11, 1888, gives the following as a useful prescription in chronic bronchitis and bronchorrhœa:

R.—Tinct. nucis vom.	℥ i.
Tinct. sanguinariæ	℥ i.
Ext. fluid. geranii	℥ i½.
Syrup. simpl.	℥ ii¼.

Of this a drachm should be taken every four hours.

The Medical News.

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OF MEDICAL SCIENCE.

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SATURDAY, APRIL 14, 1888.

ENGLISH AND AMERICAN CÆSAREAN RECORDS COMPARED.

The late Dr. Thomas Radford, of Manchester, with very commendable zeal, prepared upon three several occasions—the last when he was eighty-seven years old—tabular records of the Cæsarean operations performed in the British Isles, from January 9, 1738, to May 20, 1879, aggregating 132 cases, with 109 deaths. We now add to this list 19, 7 of which he overlooked, making 151, with 122 deaths. So far, then, as known, there have been 29 women and 83 children saved by gastro-hysterotomy in England, Ireland, and Scotland, in a period of one hundred and forty-nine years. That our late friend and correspondent failed to note a number of cases is not to be wondered at, and these were not always fatal, although never published. The same process of personal solicitation will be found requisite in England for the obtaining of unreported cases as has been so effectual here in filling out our record. Such a work is very discouraging, because it brings to light such a picture of fatality; but it is only in this way that the misfortunes of the past can be studied, comprehended, and avoided. We know that Dr. Radford must have failed to secure records of many cases, which ought to be and might be still secured by a young and energetic worker. Mr. Henry Jackson, of Sheffield, and his son Arthur, both operated on the same woman at an interval of seven years, the second operation proving fatal; the case was never published. Mr. Lawson Tait operated twice (cases fatal) during Dr. Radford's day, but he failed to answer the published letters of the latter, asking for reports to be sent him. The late Mr. Samuel Smith operated at the Infirmary of Leeds, in 1863, and the late Mr. Samuel Hay, in 1865. Mr. Scattergood operated in Otley, in 1869; the women were all malacosteon subjects, and all died; but the children were saved. A search through the traditions of Glasgow, we are informed, will show a repetition of the work of Leeds; and a general investigation in many localities in England will accomplish what has been done in some of our individual States—as in Louisiana and Georgia; in the former, 10 out of 19 cases were never published, and in the latter, 7 out of 11.

We have now a record in the United States of 164 Cæsarean operations, of which 16 were Sänger cases. Of this list, 56 were never published, and would have been entirely lost to science but for the search made; many other cases were *communicated*, but were subsequently reported through the journals, or will yet be. 62 women and 63 children were saved; those born moribund, or that very soon died, are not counted in this record.

The Cæsarean operation is much more frequently performed in the United States now than in former years, the average per annum having increased from 3 to 6, there having been 24 in the last four years, which is not likely to be reduced, under the prospect of a diminishing fatality, by the adoption of the Sänger method. Great Britain does not yet appear to realize the capabilities of this valuable death-reducing improvement; possibly the three successes in order of Prof. W. T. Lusk, of New York, during the past year, who is one of the vice-presidents of the British Gynecological Society, may induce some of her members to make trial of it. Since May 20, 1879, when Dr. Radford's record closed, there have been published only 12 British Cæsarean operations, saving 4 women. We know that the number of cases has fallen off in latter years, but do not believe that this is even nearly all of them. From the date given to the present time, our own country numbers 40 cases. In the three years 1865, '66, '67, there were 20 British cases; in 1875, '76, '77, ten years later, there were, as far as known, 10; and in 1885, '86, '87, only 6.

ERYTHROPHLŒIN.

In The Medical News of March 10, 1888, we called attention to the experiments of Liebreich and

Egasse, Nevinny, and several other investigators on the action of haya or erythrophlœin, the new local anæsthetic, derived from an African plant. In the *Berliner klin. Wochenschrift* of February 27, 1888, is an additional communication by Liebreich, made to the Berliner med. Gesselschaft, and a discussion of his paper by Lewin. Again, in the *Therapeutische Monatshefte* for March, 1888, is a very full paper by Liebreich, while in the *Deutsche med. Wochenschrift* of March 8th is a discussion on a paper by Karewski, concerning the same drug.

Medical literature has been so burdened by reports of the action of the poison that it is at first difficult to reach a conclusion as to its true anæsthetic value. At present, however, its most enthusiastic upholders confess to its inferiority to cocaine, and there can be no doubt that it is possessed of far greater toxic powers than its sister anæsthetic. Enough clinical work has not been reported to enable us to point out any conditions in which it can succeed where cocaine has failed, and we doubt if any such properties will be discovered. The enthusiasm over its introduction is but another evidence of the yearning of humanity after anæsthetics which do not produce unconsciousness.

THE AGNEW JUBILEE.

ON Friday, April 6th, Professor D. Hayes Agnew passed the fiftieth anniversary of his entrance into the medical profession. This anniversary excited such widespread and kindly interest, that the word "jubilee" expresses most fitly the sentiment of his professional brethren on that occasion. This sentiment has found expression in the call for a jubilee meeting, to be held by his students, on April 24th, at the University of Pennsylvania, and reached its most felicitous demonstration April 6th, when the guest of the day was banqueted by a large assembly. Here, some of those who witnessed the work of his earlier years bore eloquent testimony, in prose and verse, to the value of his career, while the consensus of feeling and opinion exceeded the compliments usual on social occasions, and became heartily and affectionately congratulatory. And well they might be; for to have participated in the development of surgical science for fifty years with that intelligence which only anatomical study can bestow; to have seen the greatest enemy of the surgeon, septicæmia, in a large measure vanquished; to have shared actively by precept and example in this the greatest advance in the medicine of the century; and to have won the affectionate regard and high esteem of his guild, and of his fellow citizens is a career preëminently successful.

Such a career has influence, constant and potent; whether spoken or written, the utterances of such a mind, exemplified in personal sincerity and devotion to science, are the noblest plea that scientific medicine can make for the respect, the admiration, and affection of mankind. We join most heartily in the jubilee of this distinguished professor and surgeon, and wish him many years of enjoyment of the honors and usefulness so widely extended to him. We wish him, then, long life, for

> "He most lives
> Who thinks most, feels the noblest, acts the best."

THE army of medical doctors has been augmented by recent graduations, as follows:

Jefferson Medical College, Philadelphia	188
Louisville Medical College	95
College of Physicians and Surgeons, St. Louis	44
Western Pennsylvania Medical College. Pittsburg	34
Medico-Chirurgical College, Philadelphia	20

AT the meeting of the Paris Academy of Medicine on March 13, 1888, Professor William T. Lusk, of New York, was elected a corresponding member, receiving forty votes against ten for Sir William MacCormack and two for Victor Horsley, of London.

THE importation of smallpox from Italy has probably ceased for the time, at the port of New York. The Health Officer of that station has adopted more stringent measures and more thorough vaccination of immigrants coming from infected ports. The correspondence of that officer and the Health Boards of New York City and Brooklyn, bearing upon the alleged defective inspection of immigrant vessels, has been very pointed, and at times almost acrimonious. As a result, the less frequent introduction of smallpox may be expected.

DR. NETTER, of Paris, has found, in the saliva of three healthy persons, a pathogenic microbe capable of causing death in animals. It appears to be identical with the bacillus discovered by Friedländer in the lungs of patients having pneumonia, and known as the diplobacillus pneumoniæ of Weichselbaum. It is sometimes associated with the pneumococcus of Fränkel. Netter found this microbe rarely; he met with it only three times in 180 specimens taken from

105 persons. It was rapidly fatal when injected into the blood of guinea-pigs and mice, but had no effect upon rabbits. Man may share this immunity, or it may be transient, as proved by Thost, that Friedländer's microbe may exist innocuously in the nasal mucus of healthy persons. The author believes that pneumonia is always connected with the pneumococcus of Fränkel, and that the action of Friedländer's microbe has not yet been proved to be constant and pathogenic. In his opinion, it will be found to be rather an accidental concomitant, due to its presence in favorable regions of the air-passages, rather than a necessary agent in the production of pneumonia. Further research must be had in order to determine the action of this organism as a disease-germ.

The total reported mortality in 1887 in the State of New York was 96,453, of which 36.3 per cent. were under five years of age. The average death-rate stood at 17.5 per thousand. The population is here taken to be five and a half millions—a figure wanting in certitude, in view of the fact that there has been no census for seven years. The average rate of death in certain regularly reporting districts—almost wholly urban in character—was 23; while in other districts, chiefly rural, the rate ran at 18.4 per thousand. If, by reason of known defects of registration of deaths in some incompletely organized sections, the entire State be given this last-mentioned rate, the total deaths would have reached 101,200. Zymotic fatality was higher than during the three years past. Diarrhœal deaths were unusually numerous during the midsummer months, with a correspondingly great loss under five years. The percentage of mortality in that age in the month of July was as high as 52.7; in June and August it was 40 and 45.3, respectively.

Judge Ewell writes to the *Journal of the American Medical Association* that "there is absolutely no doubt whatever, that in publishing clinical lectures without the lecturer's consent, a legal wrong is committed, for which the courts give an adequate remedy," and he offers to furnish authorities for this statement.

The establishment of a "Stomatological Society," whose object is the scientific study of diseases of the mouth, the teeth, and adjacent parts, is announced at Paris. In view of the development which laryngology has attained, a pure "stomatologist" will be a curiosity, especially interesting to laryngologists and dental surgeons, who will be concerned in allotting territory to the new specialty.

English-speaking residents in Switzerland are exercised over the Swiss law, whose enforcement is threatened, which withholds license to practise from any but graduates of the Swiss medical colleges.

The tendency of those who minister to the soul to include the body in their sphere of action, has been repeatedly exemplified, notably in the "faith cure" superstition, at present prevalent in America. The physicians of Belgium have resented the usurpation of their functions by the clergy, and are endeavoring to repress what they consider unjustifiable interference in their field of work.

The Royal College of Physicians held its annual election for President on March 31st. Sir William Jenner declined to be again a candidate, having held the position for seven years. In the balloting, which followed the presidential address, the race was very close between Sir Andrew Clark and Dr. Quain, but the former was elected. On the first ballot Dr. Quain had the highest number of votes, but he fell short of a two-thirds majority, whereupon in the second ballot Sir Andrew ran ahead of him, having seventy-nine votes to Dr. Quain's seventy-one votes.

Under the title *Nouvelle iconographie de la Salpétrière*, MM. Nicher, Tourette, and Londe announce the publication of a journal under Professor Charcot's direction, which will be a bimonthly review of the diseases of the nervous system.

The publication of an Italian edition of the *American System of Medicine* is announced, by Dr. Francesco Vaalardi, at Milan.

Albert G. Browning, M.D., of Providence, R. I., died April 6th, at the age of forty-nine years. The cause of his death was apoplexy, by which he was first prostrated March 8th.

Dr. Browning was born in Woodstock, Conn. After graduating from the Academy in that town, and teaching for a while in the schools thereabouts, he began the study of medicine under Dr. George H. Church, of Wickford, R. I., and subsequently graduated from the Yale Medical School. He practised medicine successfully in Providence and

vicinity about twenty-five years, and during the last half of that period gave much attention to the special uses and applications of electricity as a means of treating disease.

He was a cheerful, genial man, a ready speaker, and possessed a vast fund of witty anecdotes and stories. Politically he was a staunch Democrat. He had been a Fellow of the Rhode Island Medical Society since 1863. His wife and his aged mother are the only near relatives who survive him.

REVIEWS.

The Prescription. By Otto A. Wall, M.D. St. Louis: Aug. Gast Bank Note and Lithograph Co.

This little book, while it contains quite a large amount of information as to the derivation of signs and symbols will, we believe, only prove useful to the student of pharmacy, or to the physician who has sufficient time to devote himself rather to the non-practical details of medicine than to those of daily life.

While many of the definitions are interesting because of their derivation, the book is marred by tautology to a very large extent, and lacks smoothness. The advice given is unsuited to the well-educated physician, and the book contains too much matter for the busy medical student, as is evident when the number of pages is considered, one hundred and seventy-seven. No book can ever avoid treading upon some one's toes, which tries to give advice to both the physician and druggist at one and the same time, yet this is the avowed object in his preface of the author of *The Prescription*. The book savors of placing the druggist on the same plane as the physician, which is a mistake, since, while the professions are to a certain extent linked together, they never can be identical.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, April 5, 1888.

The President, A. Jacobi, M.D., in the Chair.

Drs. E. C. Seguin and Robert F. Weir read a double paper entitled

A CONTRIBUTION TO THE DIAGNOSIS AND SURGERY OF CEREBRAL TUMORS,

which will appear in full in an early number of *The American Journal of the Medical Sciences*.

Dr. W. W. Keen, of Philadelphia, gave some details of the case briefly referred to in The Medical News of December 24, 1887. The full report of the paper had not been published yet, he said, as he preferred to present it at the Washington Congress next September. At the age of three years the patient fell from a window, his head striking on a brick. A superficial wound was made, but no trouble was experienced from the injury until twenty years had elapsed, when epilepsy developed. This was associated with aphasia and paresis and paralysis of the right arm and leg. No history could be obtained of any "signal symptoms," on which Dr. Seguin had laid stress in the paper. Later there was complete recovery from the paresis, paralysis, and aphasia.

The operation was performed December 15, 1887. Instead of marking upon the skull with a colored pencil, the spot where the opening was to be made, as had been done by Dr. Weir in his case, a little piece of bone was gouged out at a point corresponding with a slight scar which was presumably left by the injury to the head received when the patient was three years old. The tumor removed measured nearly three inches in its long axis, and about two inches in its short axis. During the operation great trouble was experienced from hemorrhage, due in great part to the extreme friability of the vessels. The hemorrhage was controlled partly by hot water, partly by ligation, and partly by pressure. In tying a vessel it was found that if one end of the catgut was pulled at all more strongly than the other, the ligature would invariably cut through; so that absolute equality of traction was required in order to accomplish this successfully. The hot water employed was at a temperature of from 120° to 130° F.

The patient did perfectly well for two days after the operation. On the third day marked symptoms of pressure showed themselves, and this was ascertained to be due to the presence of a large clot, of greater size than the tumor itself. This was removed by careful washing, and all went well for ten days, when pressure symptoms were again observed. There was also severe diarrhœa and a temperature of 104½°. Under the circumstances, the presence of pus was suspected, and the wound was accordingly reopened. Afterward Dr. Keen regretted having done this, as it resulted in *hernia cerebri*, and he become convinced that the unfavorable symptoms noted were largely due to the diarrhœa. Later the patient had two or three other attacks of diarrhœa (less severe than the first), which were also accompanied by more or less rise of temperature. The hernia remained for a considerable time, and in order to facilitate the process of healing skin-grafts were transferred from the arm. The wound was dressed with bichloride gauze for eight weeks, but there was no evidence of its producing any toxic effect upon the system; the diarrhœa not being attributable to this cause. While the healing was going on the surface remained considerably elevated, but when the cicatrizing process had been completed it suddenly became concave, instead of convex, and has so continued ever since. Photographs were exhibited of the *hernia cerebri* and of the wound when healed.

Recurring to the operation, Dr. Keen said that he did not employ the spray, but made use of all the other ordinary antiseptic precautions. In speaking again of hemorrhage, he said that he regretted that previous to the operation he had not administered a dose of morphia, as recommended by Horsley, for the purpose of diminishing the blood-supply to the parts. In another case he should also be inclined to give ergot, and perhaps antipyrin, and he preferred to use cocaine locally if occasion required. Such agents, he thought, afforded a much better chance of controlling hemorrhage in this class of cases than the mechanical means commonly resorted to. He then spoke of the importance of completely shaving the head, for purposes of examination, of every patient in whose case there was any brain trouble

likely to call for operation, and said that in a case of epilepsy that had recently been referred to him, two scars were discovered when the scalp had been shaved. In regard to the question of drainage, in his case he had been compelled to keep this up for a much longer time than he desired. Such a course was rendered necessary, however, on account of the large clot and the discharge which followed it. According to Horsley, drainage should not be maintained for more than twenty-four hours, and he believed that this might suffice, except under special conditions, such as existed in the present instance.

NEWS ITEMS.

The Agnew Jubilee.—Over two hundred members of the medical profession of Philadelphia sat down to a banquet in the Foyer of the Academy of Music last Friday evening in honor of the fiftieth anniversary of the graduation in medicine of Dr. D. Hayes Agnew. Dr. Da Costa presided, and on his right sat Dr. Agnew the guest of the evening. There were also present a number of Dr. Agnew's professional friends from other cities, including Drs. Sayre, Weir, and Agnew, of New York, Tiffany, of Baltimore, Billings, Ford Thompson, and Yarrow, of Washington, Hunter McGuire, of Richmond, Weist, of Indiana, and Parkes, of Chicago.

Dr. J. M. Da Costa, after the cloth was removed, spoke as follows:

Fifty years ago, on this very day, there stood, with the honors of a University just received, a young man on the threshold of his life. His thoughts were the pleasant ones of the occasion; his aspirations had hardly taken shape; he was the popular comrade of the hundred and fifty-five whose real life, like his own, was to begin. Fifty years have passed, and their Agnew has become our Agnew of the many thousands of the American profession.

Honored Guest: In addressing you to-night I feel that I speak not simply for those who are gathered around you; nor for those in this Commonwealth whose interest will centre here; but for the whole profession who hold you in such esteem, and whose sympathetic thoughts, could they reach you, would come to you in messages of such good-will and affection as to overwhelm you with their warmth.

Your career has been, indeed, a remarkable one; and you must pardon me, and let the occasion be my excuse, if, in your presence, I allude to its success, and to the main causes of that success. Nor is it wholly unfitting in one to do so who has known you, and watched your progress with friendly interest, almost since you came to this city, to try your powers in a wider field. The training you brought with you as a rural practitioner of note was indeed valuable. Self-reliance, cool judgment under difficult circumstances, are not the least reward of a country physician's hard life. You enrolled yourself as a teacher of medicine in its most laborious branch, and fittingly took charge of a school which has been the nursery of famous anatomists and surgeons—where Godman's practical skill was displayed, and Joseph Pancoast laid the foundation of that intimate knowledge of the human frame which made him afterward so great a surgeon.

This Philadelphia School of Anatomy, in College Avenue, has, indeed, left its mark in the history of medicine. It has been to us what the Windmill Street School was to the London of William and of John Hunter, of Hewson, of Cruikshank, of Baillie, of Benjamin Brodie, of Charles Bell. Its rickety structure harbored not only anatomists—some of them your own pupils, who were to succeed you as celebrated teachers—but its dingy walls heard eloquent discourses on diverse branches from more than one of your future colleagues; in its garret, independent and fruitful researches on the textures of the body were pursued; in its cramped lower room, physiological experiments were carried on, which have made their deep impress on the science of our day.

For ten years working in this school of anatomy you lived laborious days and nights, and in its stern training your classes grew, until the narrow quarters would hold them no more, and you became the popular, admirable teacher you have proved yourself since, on a larger scale and on a different branch, as Professor of the Principles and Practice of Surgery in the famed University with which your reputation is forever identified. You learned to present facts plainly and impressively, to teach Nature's truths with Nature's simplicity, and without a deadly paralysis of words.

But in these ten years of unremitting work you did something more than teaching. You laid, by exact knowledge, by steadiness of purpose, and affability, the foundations of that large practice which you have since enjoyed, developing every day, more and more, into the trusted surgeon whose deft hand and cool judgment caused his advice to be generally sought. Every country shows in its professions the national traits. You certainly represent, as a surgeon, besides much skill, the American characteristic of resolute common-sense.

You have been tried in many a hard case. In none harder, than when your reputation caused you to be selected among the counsellors at the wounded couch of one for whose relief millions were anxiously watching. That in these trying times you bore yourself with the same calmness and dignity we know in you, every one in these millions recognized.

Your success as a surgeon of great repute must, indeed, have been gratifying to you. Not only for the opportunities it afforded you of doing so much active work in your profession; not only because it gave a personal value to your writings, especially to your opinions expressed in your elaborate work on *Surgery;* but because it enabled you to carry out a plan of action, of which I may not speak,—one which showed you to be possessed of the same high sense of honor for which Sir Walter Scott has received the unbounded admiration of mankind.

May you, dear sir, who have these many claims to distinction and esteem; may you on this, the fiftieth anniversary of entrance into a profession which you have graced by your industry, your sagacity, your skill, your character; may you accept the homage of those who are engaged with you in the same pursuit as a sign of widely felt regard and appreciation. May your vigorous frame preserve your power of doing good, of teaching truths, for many a long year. May there always remain with you the assurance that, as age gently lays its hand on you, the chilling finger of time will not lessen the respect, nor benumb the tenderness of feeling, with which old and young alike regard you.

Dr. Agnew, upon rising, was greated with enthusiastic cheers. He said

Mr. Chairman: When I glance over this table and see so many distinguished and representative men of my profession who have come to do honor to one of the humblest of their guild, I confess it is with a deep sense of embarrassment that I wish to respond to the complimentary sentiments embodied in your toast and in your address. I can say without affectation that had it been the pleasure of my friends, a less conspicuous demonstration of their goodwill than the present would have been more in consonance with my feelings and taste.

It is a great distinction for any man in whatsoever sphere of life he may move to win the confidence and esteem of his fellows, and it is scarcely necessary for me to say how profoundly I realize this mark of your respect. Any man who has lived long in this world, and has taken a thoughtful retrospect of his past life, must be forced to confess that the influences and forces which have conspired to mould his character, and to shape his destiny are most mysterious indeed. Plans constructed with infinite care have miscarried; fondly cherished hopes have been suddenly crushed with a shock, as when a precious vase is broken to fragments on the pavement; glowing anticipations just about to be realizations dissipated in a moment into thin viewless air like earth mists before the morning sun. One of Scotland's gifted but unfortunate sons has condensed these thoughts into the expressive couplet,

> "The best laid schemes, o' mice and man
> Gang oft aglee."

And the great bard of England, rather the bard of all peoples and all times, has crystallized the same sentiment in those expressive lines,

> "There is a divinity which shapes our end
> Rough hew them how we will."

And a greater than either has said it is not in man to direct his steps.

About thirty-five years ago I came to this city, a stranger. Though previously enjoying a large practice, in a wealthy and populous district, yet the field was never a satisfactory one. The horizon seemed too contracted, the prospects uninviting. Possessing naturally strong anatomical tastes, I was able to gratify these to only a moderate degree by dissections of the human body and the bodies of animals; yet the prejudice against studies of this nature was calculated to render their prosecution unpopular, not to say very embarrassing. The desire, therefore, to obtain a larger field for the gratification of the idol of my thought, induced me to make Philadelphia my home.

The scene of my early labors, as most of you know, was in College Avenue, in the Philadelphia School of Anatomy. This institution—not a chartered, but a private one—had both an ancient and honorable history. It was here that Godman and Webster and the elder Pancoast and Allen laid the foundation of their reputations. It was indeed a school of the prophets; a gymnasium in which were trained the great majority of the men who, as teachers and writers, have filled so large a place in the medical world. Among these names may be mentioned that of Gerhard, the pioneer of physical diagnosis in America; of Wallace, who became Professor of Obstetrics in the Jefferson Medical College; of Bridges, Professor of Chemistry in the Philadelphia School of Pharmacy; of Keating, elected Professor of Obstetrics in Jefferson College, but compelled to resign on account of ill health; of Henry H. Smith, Professor of Surgery in the University of Pennsylvania; of Frances Gurney Smith, Professor of Physiology in the same institution; of your honored Chairman, Professor of the Principles and Practice of Medicine in the Jefferson Medical College; of Penrose, Professor of Obstetrics in the University of Pennsylvania; of Brinton, one of the Professors of Surgery in the Jefferson Medical College; of Garretson, the author of a popular work on oral surgery; and of Keen, Professor of Surgery in the Women's Medical College of Philadelphia. It was here that Brown-Séquard delivered his lectures on operative physiology, and it was here that Mitchell conducted his classic experiments on snake poison, and on many physiological problems, which have placed his name alongside that of Ferrier, and given him a high place among the scientists of the present day. It was in this institution that for several years, summer and winter, night and day, rarely taking a vacation, I studied the mysteries of this wondrous frame, with a love and a zeal which never flagged, and drew around me—notwithstanding the hostility of the two great medical schools—from the small beginning of twelve medical students, the largest private classes, only limited by the capacity of the building, that had ever followed a private teacher in this country.

Those were happy days; Yes, I think the happiest days of my life. I was then master of my kingdom. Those old dingy rooms had more attractions for me than the frescoed and fretted walls of a palace, and those anatomical odors were as sweet as those of Araby, the blest. The curriculum of instruction consisted of lectures on descriptive anatomy, surgical anatomy, operative surgery, and dissections, and when I was induced to accept the demonstratorship of anatomy in the University of Pennsylvania it was with reluctance and regret that I left the Philadelphia School of Anatomy.

It is entirely natural that my thoughts should linger about College Avenue—for it was there that I formed those friendships which, like hooks of steel, have bound me to the men of every part of this country and not a few across the sea.

In 1854, a united effort was made to reopen the Philadelphia Hospital for medical teaching, the doors of which had been closed for several years. History furnishes innumerable instances in which the most momentous events have been determined by the most trivial incident. All these fade into insignificance when contrasted with that which closed the doors of this great clinic against the profession. The cackle of a few geese saved Rome, a presumptuous cock-roach barred the gates of the Blockley Hospital—and let me say here in parenthesis, that to Dr. Henry H. Smith and Dr. J. L. Ludlow more than all others combined, the profession and the country at large are indebted for the restoration of this important hospital to clinical instruction. By their unwearied and indefatigable perseverance, by their unceasing importunity, like the widow with the unjust judge, these men succeeded in revolutionizing the antagonistic and settled sentiment of the Board of Guardians, and gained this great conquest, and on the same day that the hospital committee made their favorable report, Dr. Smith and myself were

elected surgeons to the institution; and for twelve years, save for a short interregnum, when self-respect demanded the resignation of the Medical Board, I continued to discharge the duties of a clinical teacher of surgery in the hospital. In 1864, I was elected one of the surgeons to the Wills Hospital for Diseases of the Eye, fulfilling the duties of the place for a period of about six years. In 1865, I was honored by an appointment on the surgical staff of the Pennsylvania Hospital, and for about eleven years continued my service in that venerable institution until the inauguration of a policy which compelled me to resign. Let me say here that I have made it a rule of life never knowingly to violate my sense of duty—and with the help of God's grace, it has never cost me one moment's hesitation to turn my back on any proposition or place however tempting, the acceptance of which would compel me to surrender my conscientious conviction of right. In 1877, the Board of Managers, of its own motion and unsolicited, with a cordiality and unanimity which I can never forget, reëlected me to my former place on the surgical staff. In 1867, I was elected one of the surgeons to the Orthopædic Hospital, then situated on Ninth Street, and which has now grown to be one of the important institutions for the treatment of deformities in this country.

In 1870, the Trustees of the University elected me to the Chair of Clinical Surgery in that institution, and a year later to the Chair of Principles and Practice of Surgery, and on the completion of the University Hospital building I was appointed one of the clinical professors of surgery—why I should have been honored with so many appointments to places of dignity and influence, I know not. Other and abler men could have filled them. But this much I can say, I never schemed or planned for one of them. Any place in the republic of medicine was honorable enough to me. I knew there were golden apples in the garden of Hesperus, but I was too much in love with my own particular study to attempt the play of Hercules and the dragon.

My love for the profession was inborn, wrought into the very fibre of my mental organization, and inspired not by the honors at her command, but from the unspeakable satisfaction and pleasure of being able to use her resources for the benefit of our common humanity. How long I may be able to continue in this good service I know not. This I leave to the wisdom of Him who numbers the hairs of the head and notes the flight or the fall of a sparrow. When that supreme moment comes I shall be satisfied. I have had all that I could wish, more than I deserve, and now, gentlemen, this is a great honor which you have done me: to be the guest of such a company should satisfy the most exacting ambition, and let me say to each and all of my professional brethren here to-night, that I have no words which can fittingly express the profound obligations under which I am placed, to your generosity and kindness.

Dr. S. Weir Mitchell then read the following poem, which he had written for the occasion:

MINERVA MEDICA.

A golden wedding; fifty earnest years
This spring-tide day from that do sadly part,
When, 'mid a learned throng, one shy grave lad,
Half-conscious, won the Mistress of our Art.

Still at his side the tranquil goddess stood,
Unseen of men, and claimed the student boy,
Touched with her cool sweet lips his ruddy cheek,
And bade him follow her through grief and joy.

"Be mine," she whispered in his startled ear,
"Be mine to-day, as Paré once was mine;
Like Hunter mine, and all who nobly won
The fadeless honors of that shining line.

"Be mine," she said, "the calm of honest eyes,
The steadfast forehead, and the constant soul,
Mine the firm heart on simple duty bent,
And mine the manly gift of self-control.

"Not in my service is the harvest won
That gilds the child of barter and of trade;
That steady hand, that ever-pitying touch,
Not in my helping shall be thus repaid.

"But I will take you where the great have gone,
And I will set your feet in honor's ways;
Friends I will give, and length of crowded years,
And crown your manhood with a nation's praise.

"These will I give, and more; the poor man's home,
The anguished sufferer in the clutch of pain,
The camp, the field, the long, sad, waiting ward,
Watch for your kindly face, nor watch in vain;

"For, as the sculptor years shall chisel deep
The lines of pity 'neath the brow of thought,
Below your whitening hair the hurt shall read
How well you learned what I my best have taught."

The busy footsteps of your toiling stand
Upon the noisy century's sharp divide,
And at your side, to-night, I see her still,
The gracious woman, strong and tender-eyed.

O stately Mistress of our sacred Art,
Changeless and beautiful and wise and brave,
Full fifty years have gone since first your lips
To noblest uses pledged that forehead grave.

As round the board our merry glasses rang,
His golden-wedding chimes I heard to-night;
We know its offspring; in a hundred towns
His pupil children bless his living light.

What be the marriage-gifts that we can give?
What lacks he that on well-used years attends?
All that we have to give are his to-day—
Love, honor, and obedience, troops of friends.

Dr. Thomas Wistar also read an ode to Dr. Agnew.

A Protest against the Introduction of Water Gas into Philadelphia.—The College of Physicians of Philadelphia last week adopted a protest against the introduction of water gas into Philadelphia, based upon a report prepared by a special committee consisting of Drs. H. C. Wood, T. G. Wormley, J. W. Holland, H. Leffmann, I. Norris, Jr., and Homer Jayne.

The committee reported that the various analyses of water gas, as published, show that it contains from thirty to forty-five per cent., or even more, of carbonic oxide, while ordinary coal gas has in it from three to seven per cent. of the same compound. A comparison of the deleterious or poisonous substances yielded to the surrounding atmosphere during the combustion of an equal volume of each of the gases showed that the combustion of 100 cubic feet of coal gas would give rise to 55.84 cubic feet of carbonic oxide gas; whilst the combustion of an equal volume of water gas would generate 73.32 cubic feet of carbonic oxide. That is, the combustion of

a given volume of water gas would produce over thirty per cent. more carbonic oxide than the combustion of an equal volume of coal gas, and would, therefore, contaminate about one-third more of the air of a room.

In regard to the relative poisonous properties of the two gases before they are burnt, the report says, it depends upon the quantity of carbonic oxide in them, the other ingredients being comparatively harmless. When quantities of either gas get into a room a certain proportion escapes through the windows, doors, and other apertures, so that it does not follow that a gas containing twice as much poison as another will be doubly as fatal. According to most authorities, one-half of one per cent. of carbonic oxide in the atmosphere of a room is sufficient to cause death. The presence of one per cent. of coal gas would necessitate the presence of six-hundredths of one per cent. of carbonic oxide, which would not be sufficient to produce immediate bad results. On the other hand, one per cent. of water gas would be equivalent to from thirty to forty-hundredths of one per cent. of carbonic oxide. It is plain that three per cent. of coal gas in the atmosphere would do no serious injury, whilst but little over one per cent. of the water gas would be required to take life.

The introduction of water gas into cities has, so far as the committee has been able to get at the facts, always been accompanied by an extraordinary increase in the number of deaths from gas poisoning. In New York City in the seven years terminating January 1, 1888, there were 177 deaths from water gas and nine deaths from coal gas, whilst the number of deaths in January of this year in New York City from water gas is said to have equalled all the deaths from coal gas in Boston in the last fifty-five years. In the five years ending January 1, 1885, there were in the city of Baltimore forty-five deaths from water gas. In the year 1887, following the introduction of water gas into San Francisco, the number of deaths was twelve. Eleven deaths were reported in the New York newspapers as having occurred in Chicago in 1886 and 1887. Of the exact number that really did occur in Chicago the committee has no accurate information.

The committee has been very much struck by the fact that whenever they have met with the report of deaths occurring in a small city from the inhalation of gas, upon looking into the list of cities, supplied with water gas, they have invariably found that the city in which the death took place was upon the list. Within the week an occurrence in Reading, Pa., points out a very important danger. It is generally thought that these deaths are the result of carelessness in leaving the gas turned on, although extinguished. It would appear, however, that owing to the variations in pressure, and probably also to the variation in the mixture of the constituents of the water gas or to other cause, when the gas is left burning low at night it is entirely possible for the light to go out, and afterward sufficient gas to escape into the room to cause death. Thus on March 30th, in the Keystone House, in Reading, two gentlemen were found dead in their beds from water-gas poisoning, and, according to the testimony at the Coroner's inquest, the gas had been left by them lighted.

According to Mayor Fitler's annual report, over 12 per cent. of the yearly product of the Philadelphia Gas Works is lost in leakage, equal to 440,340,319 cubic feet annually. While it is not possible to form a definite opinion of the extent of ill-health caused by breathing noxious gases that escape in this manner, the committee believe it a subject for urgent consideration in selecting a gas for use in a large city like this.

Dangers that already exist from this source would be alarmingly multiplied by the substitution of water gas for coal gas. In Troy, N. Y., during the winter of 1886–87 fifteen persons were overcome by the escape of water gas from a leak in the soil, and required medical attendance to revive them. The inhabitants of an entire row of houses in the same city were similarly overcome, and in the cases which terminated fatally death was attributed to carbonic oxide poisoning.

It has been ascertained from Mayor Fitler that sufficient water gas would be introduced into the gasometers in this city to constitute one-third of the entire bulk used, and that the manufacturers who will bid for the contract to supply the water product admit that it will contain 30 per cent. of carbonic oxide. After it is mixed with the coal gas, the substance which is supplied for illuminating purposes will contain 13½ per cent. of carbonic oxide. There is no limit of safety in the percentage of carbonic oxide, the report says, and the line must be drawn arbitrarily. The committee believe that 10 per cent. ought to be the maximum in any gas intended for use by the public as an illuminant. In Massachusetts a protest against the use of water gas containing more than 10 per cent. of the deadly vapor was sent to the Legislature with the signatures of all the leading physicians in the State, including the professors of Harvard College, and the medical examiners and health officers of the various counties and towns.

In conclusion, the committee recommended the adoption of the following, which was endorsed by the College of Physicians:

Whereas, the College of Physicians of Philadelphia has learned that it is proposed to furnish the citizens of Philadelphia with illuminating gas consisting of two parts of coal gas and one part of water gas, a mixture which would probably contain at least about 15 per cent. of carbonic oxide; and

Whereas, in the opinion of this College, the use of any illuminating gas which contains more than 10 per cent. of carbonic oxide would be attended with very grave risks to the health and lives of the citizens of Philadelphia; therefore, be it

Resolved, That the Mayor of Philadelphia is hereby petitioned that if, in his opinion, it be necessary to use water gas in connection with illuminating gas, that great care be taken to render it certain that the mixture shall at no time contain more than 10 per cent. of carbonic oxide.

New York Neurological Society.—At the meeting held April 3d, the following officers were elected:

President.—George W. Jacoby, M.D.

Vice-Presidents.—C. L. Dana, M.D., and M. A. Starr, M.D.

Recording Secretary.—B. Sachs, M.D.

Corresponding Secretary,—E. D. Fisher, M.D.

Treasurer.—G. M. Hammond, M.D.

Councillors.—I. Weber, M.D.; E. C. Seguin, M.D.; J. C. Shaw, M.D.; W. R. Birdsall, M.D.; E. C. Harwood, M.D.

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ORIGINAL ARTICLES.

THE DIFFERENTIAL DIAGNOSIS OF PERIPHERIC AND CENTRAL DISEASES OF THE EAR.[1]

BY D. B. ST. JOHN ROOSA, M.D., LL.D.,

PROFESSOR OF DISEASES OF THE EYE AND EAR IN THE NEW YORK POST-GRADUATE MEDICAL SCHOOL, SURGEON TO THE MANHATTAN EYE AND EAR HOSPITAL.

I BELIEVE that it is not generally understood among neurologists that otologists are possessors of, and are in the constant use of pretty reliable methods for making a differential diagnosis of peripheric and central diseases of the ear. By *peripheric* affection of the ear, one external to the labyrinth is meant. A central affection may be situated either in the labyrinth itself, in the trunk of the nerve, or the brain. In the large majority of cases it has become practicable to decide whether a given lesion is situated chiefly in the tympanum, or in the labyrinth, or trunk of the nerve. The power to determine whether the seat of the affection be in the nerve trunk, its expansion in the cochlea or at its origin, is very often, as yet, quite beyond us. Still we are able sometimes to discriminate between a pure affection of the semicircular canals and of the percipient apparatus. The methods for such a differential diagnosis ought by this time to be the common property of all scientific members of the profession. To contribute to this end is the object of this paper.

What I have to say is chiefly founded upon clinical observations made by my associate, Dr. J. B. Emerson, and myself at the Manhattan Eye and Ear Hospital, and also upon studies in private practice.

It has been supposed for many years, if not ever since the study of diseases of the ear had any scientific history, that a diagnosis had been made when a plug of black wax was found in the auditory canal of a person with impaired hearing. But we have learned that inspissated cerumen is usually only a symptom of an incipient or advanced lesion of a more serious nature. He who removes the wax and congratulates his patient on the usually much improved condition of his hearing, without a thorough investigation of the lesion which has induced this abnormal condition of hardening and collection of the wax, has omitted an inquiry that may be very important to his patient.

Yet it is true that there is quite a large class of cases of aural disease where an adequate diagnosis is readily made of a peripheric disease. Such are cases of acute catarrh and acute suppurations of the tympanum.

There is, however, a large class in which it is impossible without a painstaking examination, with a careful weighing of the subjective and objective symptoms to determine whether the causative lesion is in the peripheric or central parts of the organ of hearing. These cases are not attended by suppuration. A large proportion of them present no marked symptoms, except loss of hearing and *tinnitus aurium*. A closer examination will, of course, find many more evidences of disease of the ear than these, but they may suffice for a crude classification.

In a given case of aural disease, in which we wish to differentiate between disease of the outer or inner parts of the ear, it is wise to begin by an examination of the effect of noise upon the hearing power, and upon the sensory part of the ear. It is now definitely settled that there is a class of patients who hear better in a noise than in a quiet place, and that they themselves, not only hear better than they do under what are properly considered favorable conditions for hearing, but that they hear better than do those whose ears are in a normal condition. It is thus shown that this improved condition does not depend upon the fact that people speak louder in a noise, but that the noise makes a change in the working of the apparatus by which hearing is accomplished.

Observations, repeated over and over again for a number of years, have convinced me that this symptom of hearing better in a noise, belongs only to the peripheric affections, and never to those of the nerve. It cannot be readily observed unless both ears are affected, although it may even then be detected in very intelligent patients. I recall two such. They have found out that with one ear they hear exceedingly well in a noise, and with the other badly. They utilize this knowledge in travelling in the railway cars.

The determination of the existence of this symptom is then a very good guide in the diagnosis of aural disease. How has the fact been ascertained that it is found only in affections of the auditory canal, tympanum, Eustachian tube—in short, in lesions situated peripherically to the perceptive apparatus? I answer, by a long series of observations upon cases which are similar in all other respects to affections of the outer or middle ear. In one instance, I was for a

[1] Read before the Section in Neurology, New York Academy of Medicine, April 13, 1888.

long time—that is, for two or more years—very much puzzled by the persistent declaration of an intelligent patient that he always heard better in the railway cars, although I felt sure, from the history, and from the other symptoms, that he was suffering from a central affection.

This patient is a man of fifty-nine years of age, who has been, but who is not now a practitioner of medicine. He suffers intolerably from the unpleasant effect which noise has upon his ears and head. To mitigate this, he had caused to be made, plugs of vulcanite very ingeniously and neatly constructed, which he wears constantly in the street and other noisy places. One day when, upon one of his visits occurring at long intervals, he was reiterating to me the fact that he heard better in the cars than where it was quiet, I asked him if he wore the obturators in the cars. He answered affirmatively, and he also stated that his hearing became worse the instant he took them out.

I learned on examination, to anticipate what I shall have to say of the use of the tuning fork, that with the obturators in his auditory canals, bone conduction was better, while when the ears were free from these, aërial conduction was better.

The explanation of the apparent exception to what I had supposed to be a rule was evident at once. I found that unlike persons with disease of the middle ear alone, he did not hear with ease, or better than those whose ears are sound in the noisy cars, but that he heard better than he could in quiet places, and also that the obturators made his hearing worse when he was trying to listen to one person in a quiet room. The plugs added a peripheric lesion to the central one. They diminished the intensity of the sound of the tuning fork by aërial conduction, just as as a plug of wax will in the ear of a boiler-maker who suffers from disease of the acoustic nerve as a result of his occupation, or as in the same class of cases a catarrh of the tympanum will mask the central lesion.

As I have shown in a paper upon "The Effects of Noise upon Diseased and Healthy Ears,"[1] boilermakers' deafness depends upon a central affection, one of the labyrinth or acoustic nerve. Like people who have no such disease, they may have a peripheric affection of the ear added to this. They will then present what may, perhaps, be called a mixed case, and often the symptoms of the disease of the canal (wax) or of the tympanum (acute catarrh) will predominate, as far as the tuning-fork is concerned, until the peripheral disease disappears. My patient had artificially packed his auditory canal. Hence the relatively better hearing in a noise and the diminished intensity and duration of the aërial conduction.

It not unfrequently happens that the peripheric disease advances to be also one of the vestibule and labyrinth, or it may simultaneously affect both parts, as in suppurative inflammation of the tympanum in scarlet fever. We may have, and often do have, at the same time intense congestion or even suppuration of the labyrinth also. In chronic non-suppurative affections of the middle ear the labyrinth may also become diseased. It is only in well-demarcated cases, or those in which the symptoms of peripheric or central disease, as the case may be, predominate excessively over the others that this symptom of hearing better or worse in a noise can be readily made out. Although I am no friend to the system of the too rigorous bounding of the situation of a disease, such, for example, as the classification of an affection of the iris as entirely distinct from one of the ciliary muscle and choroid, I believe that we are very often able to demarcate a disease of the tympanum from one of the labyrinth. The parts are anatomically quite distinct.

It is not always easy to decide definitely that a given patient does, or does not, hear better in a noise. It is astonishing that even moderately intelligent persons, who hear very badly in the ordinary semi-quiet of their homes when engaged in conversation, and who hear better than their neighbors with good ears in the elevated railway, or surface, or steam cars, or in the din of a machine shop, will sometimes persistently declare that they hear worse in a noise. Their preconception of what they believe to be the case, causes them to ignore the facts, when they often might have much more comfort of their lives if they appreciated that they always hear better under certain conditions. "None so deaf as those who won't hear," is particularly applicable to these cases. I wish to deduce from this fact of the common failure of correct observation, that patients should be subjected to a careful cross-examination before their statement that they hear worse in a noise, is accepted.

I think we may set it down as a fact that persons with impaired hearing, who actually hear worse in a noise than in a quiet place, are suffering from some central disease of the ear. But we may easily accumulate the evidence on this point. We are by no means confined to this one symptom in making a differential diagnosis in aural disease. It should be added, while upon this subject, that noise not only decreases the hearing capacity in those affected with central disease of the ear, as it does in those with good ears, but it is unusually distressing and disturbing to them. Those who are affected with purely tympanic disease experience none of this distress or discomfort. If there be any apparent exceptions to this latter statement, a little close examination will show that they are only apparent.

In many cases of acute catarrh of the tympanum, noise is distressing, but other symptoms soon indi-

[1] Archives of Otology, vol. xii. p. 103.

cate that we have to do with a case of *panotitis*, or of simultaneous affection of the labyrinth and tympanum. A well-defined chronic or acute inflammation of the tympanum will show no discomfort in noise, but will be very favorably affected by it, while it is a part of the necessary treatment of an inflamed acoustic nerve to exclude the sound from it by plugging the auditory canal, and other devices.

I should have observed before, that many people who speak very feelingly of the variability in their hearing power, are really mistaken when they suppose that their hearing varies under the same conditions. It is the variability of these conditions, and chiefly as to noise and quietude, and not of their hearing power, especially in chronic cases, that is really the explanation of the variable capacity to hear.

The disproportion between the capacity for hearing the watch or acoumeter and conversation, which usually exists in central diseases of the ear, may sometimes add another link to the chain of evidence. In these cases the human voice is heard in a quiet place relatively much better than the watch. In peripheric disease there is no such disproportion. Persons with disease of the tympanum hear all sounds badly in a quiet place.

Important as is the consideration of the effect of noise upon the ear in differential diagnosis, it must yield the place in significance to the evidence given by the tuning-fork.

The literature of otology from the time of E. H. Weber, 1858, to our own is rich in suggestions as to the use of the tuning-fork in the diagnosis of aural disease. But it is not, in my opinion, until Rinne's experiments were modified and amplified by American observers, that we had what I think we now possess, a simple means, in the vast majority of cases, of making a differential diagnosis as to peripheric and central aural diseases.

It does not fall within the scope of this paper to recount the steps that have been taken to bring us where we are now, nor will it be supposed that I am entirely ignorant of them because I simply allude to them. I am anxious simply to show neurologists and practitioners in general that we have finally acquired a simple and tolerably exact system of diagnosis in these important cases.

If the tuning-fork known as C^1 or $C,^2$ be listened to by a person under fifty years of age, with normal hearing power, it will be found that it is always heard louder through the air, when placed in vibration and held in front of the *meatus auditorius externus*, than when its handle is placed firmly on the mastoid process. It will also be heard for a longer time. According to Emerson's experiments,[1] C^1 and C^2 are heard about twice as long (thirty-eight seconds) through the air as through bone; hence, as Rinne's famous experiment shows, if the person upon whom the observation is made indicates the instant that he ceases to hear the fork through the bones and it is held in front of the meatus, it will still be heard the number of seconds necessary to the proportion. If now we use the tuning-fork on the assumption that these observations of Emerson's have shown the truth as to ears with normal hearing, we have a most reliable test by an observation of the departure from a normal standard in a given case.

It has been observed, although Emerson's paper, written in 1882, makes no mention of this, that after middle life bone conduction is much reduced. This is due, I think, to senile changes, and I have named the condition *presbykousis*. This must be taken into account in all investigations, but it may be allowed for, and will not interfere with the diagnosis. If an auditory canal of a normal hearer be artificially plugged in any secure manner, or by disease, the bone conduction becomes at once intensified and it is longer. Observations upon many thousands have shown this.

This is equally true, with a few exceptions, when pus is seen to block the tympanum. In these exceptional cases the tuning-fork is heard better through the air than through bone. But when the pus is removed and the tympanum somewhat, although perhaps not entirely freed from inflammatory products, the bone conduction will again predominate. In these cases pressure has been placed upon the vestibule and cochlea, and a case of tympanic disease converted into one of the labyrinth also.

I have already alluded to the change of a case of acoustic neuritis, such as occurs in boiler-makers, by a plug of wax or tympanitic catarrh, to one of peripheric disease.[1] In this case the tuning-fork will be temporarily heard better through the bone. From these two series of facts, it is not far to the deduction that we are dealing with a disease of the peripheric part of the organ of hearing, where the bone conduction is louder and of longer duration, and that we have a central trouble when the reverse is true, and the tuning-fork is heard better and longer through the air. Taken in connection with the effects of noise upon the ears, we have a tolerably accurate means of diagnosis.

Why it is, that the sound of the tuning-fork is intensified when conducted through bone in disease of the middle ear and auditory canal may perhaps be easily explained. But why in disease of the central apparatus is the tuning-fork heard best through the air? I suppose it is simply because in any failure of the perceptive apparatus, the sound is best heard through the most favorable channel for the conduction of sound. Just as the pupil is the best

[1] Archives of Otology, vol. xii. p. 63.

[1] Transactions American Otological Society, 1886.

gateway for the entrance of light to the retina, so is the auditory canal the best entrance for sound to the membrana tympani. On the other hand, when the peripheric parts of the ear are converted by plugs of wax, or by collections of mucus or pus, or by thickening of the ligaments of the ossicula, or of the mucous membrane of the tympanum into solid conductors and resonators, sound passing through them is intensified. To such a degree may this go on, that, as we have seen, a person suffering from disease of the acoustic nerve may, by plugging his ears like his companion, who has only chronic inflammation of the tympanum, increase his hearing in a noisy place.

In 1874[1] I made some investigations upon the effects of quinine upon the ears, and I came to the conclusion that the impairment of hearing caused by the drug was due to its effect upon the cochlea. I was not then fully aware of the value of the tuning-fork in the differential diagnosis of peripheric and central aural disease, but since then I have made several observations upon patients clearly affected with cinchonism, having, among other symptoms, great impairment of hearing, and in all the cases the bone conduction was greatly diminished, and only the aërial remained present to any extent.

I have offered no apology for the assumption, easily deduced from what I have said, that the neurologist is bound to attempt to differentiate between a central and a peripheric aural lesion. Many of the cases that present themselves to you have aural symptoms. None but the most narrow specialism can afford to pass over the investigation of these symptoms or to relegate them to the otologist. The capability to examine the membrana tympani, and the use of the tuning-fork, in the manner that has been indicated, will furnish the means, in the vast majority of cases, for an accurate differential diagnosis.

I may then recapitulate as follows the steps of the method which I have endeavored to demonstrate.

1. Determine the effects of noise upon the hearing power and sensibility of the patient. If noise increases, or does not diminish the hearing power, the case is probably a peripheric trouble. It is central if noise diminishes the hearing. If noise is painfully disagreeable it also points strongly to central disease of the ear.

2. Observe whether the patients hear the watch relatively as well as the voice. Those suffering from lesions beyond the tympanum usually hear the human voice out of all proportion to their ability to hear the tick of a watch.

3. Test the aërial and bone conduction by means of the tuning-fork C^2. If the vibrations be heard better and longer through the bone, it is only exceptionally that the disease is not peripheric. If, on the contrary, they be heard better through the air, the disease is one of the labyrinth or of the trunk of the nerve, or of the nerve centres.

[1] Transactions of the American Otological Society.

A YEAR'S WORK IN LAPAROTOMY.[1]

BY WILLIAM GOODELL, M.D.,
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DURING the year 1887 I had fifty-three laparotomies, as follows:

	Cases.	Deaths.
Ovariotomy	27	5
Oöphorectomy	19	1
Hysterectomy	1	
Malignant tumor of omentum	1	1
Pelvic abscess	2	
Exploratory incision	3	
	53	7

With regard to the fatal cases I shall begin with those among my *ovariotomies*.

Case 194 was one of a small but malignant papillary cyst of each ovary. The papillary growths had penetrated into and through the wall of each cyst, and appeared in large masses on the surface, causing ascites, and infecting every abdominal organ. Intestinal adhesions needed three ligatures, and the application of Monsel's solution of iron. On the third day, obstruction of the bowels set in, followed by obstinate vomiting and great tympanites. The temperature kept natural, and the pulse under 100; yet, in spite of large doses of calomel and of belladonna, and of many turpentine enemata, the bowels were not moved, and the woman died on the seventh day.

Case 195 was that of a short but extremely fat woman. Two months before the operation she weighed 272 pounds, but had failed so much in health and strength that, at the time of the operation she weighed 254 pounds, and she could not walk without assistance. Owing to excessive deposit of fat in the abdominal wall, which was also œdematous, the incision had to be a long one, as well as a deep one, and the area of raw surface made by the wound was the most extensive I have ever made, or have ever seen. Both ovaries, being diseased, were removed. The left one was a large, multilocular, papillary cyst, weighing about twenty pounds. Its whole anterior surface had contracted very firm adhesions to the abdominal wall. A considerable amount of ascitic fluid was present. As she was operated upon at her home in the interior of Pennsylvania, I did not see her again. She died, from peritonitis, on the fourth day.

Case 204 was in a very low condition at the time of the operation, which was undertaken in every sense as a forlorn hope. To allay her sufferings, she

[1] Read before the Philadelphia Obstetrical Society, April 5, 1888.

had been tapped by her physician sixteen days before. At the time of the operation she was delirious, had a high septic fever, and suffered extreme abdominal pain. Her shrieks so disturbed the inmates of the University Hospital that she was removed to a room at a distance from the wards. The cyst was intraligamentary, weighing probably about twenty pounds, and it was adherent to the abdominal wall, the intestines, the stomach, the aorta, the womb, and to the whole pelvic basin. Which ovary was implicated I cannot say, for I was unable to find a pedicle, or to discover the second ovary. All the adhesions were severed, save those to the womb and to the pelvis, and these were not touched, as the woman seemed to be dying. During the whole operation, indeed, hypodermatics of alcohol and of ether had to be given frequently, to prevent fatal collapse. All the free portion of the cyst was cut off, the rest stitched to the wound, and a drainage tube put in. The patient never rallied, and died seven hours later.

Case 205 was one of colloid cyst, weighing thirty-three pounds. The woman had been tapped one month previoüsly. At the time of the operation she was bedridden, greatly emaciated, and much prostrated by pain and sleeplessness. The cyst had burst some weeks before, and every internal organ was infected. The adhesions were universal. The peritoneal cavity was thoroughly cleansed, and a drainage-tube put in. She died on the eighth day, from sheer exhaustion.

Case 211 was one of suppurating, dermoid cyst, and had been bedridden for several weeks by an attack of peritonitis, followed by septic fever with night sweats. The cyst, weighing ten pounds, was full of hair, and a putrid matter which gave off an offensive odor. The walls were so rotten that they tore in several places, while very firm adhesions in the right loin were being severed. Hence, some of the contents of the cyst escaped into the abdominal cavity, which, however, was carefully washed out, and a drainage-tube put in. She died on the fifth day, from septicæmia.

Of my nineteen *oöphorectomies* I lost one case, and that one on the fourth day, from suppression of the urine. It was one of papilloma of each ovary, and of the broad ligament. The operation was not a very difficult one, yet it was followed by suppression of urine and uræmic coma. Previously to the operation there had not been any symptoms pointing to renal disease, and the urine had not been examined, but kidney-mischief must have existed. Toward the close the patient's breath became excessively offensive, and she died at the end of three days.

Among my oöphorectomies I had several difficult operations, both from adhesions, and from the presence of large uterine fibroids, for which the operation was performed. But I shall not enlarge upon these cases, as I wish to defer their consideration for another paper.

Of the seven remaining laparotomies one resulted in death on the forty-eighth day. It was a case of malignant colloid tumor of the omentum, in a patient of Dr. I. W. Hughes, of West Philadelphia. Ascitic fluid was present in abundance, and the patient had been confined to her bed for many weeks, from attacks of great abdominal pain. From the hypertrophy of the omentum, from the excessive vascularity of the parts, and from intimate intestinal adhesions, the operation was one of difficulty. At the end of a week I left the city for my holiday. During that time, and for the following week, the lady did well; then fever set in, and, after a few days, a large, deep-seated abscess broke through at one end of the abdominal wound. Later on, another abscess burst into the large intestine, and she died from exhaustion, on August 16th, the operation having been performed on June 29th.

The other successful laparotomies consisted of two cases of chronic, pelvic abscess, in which the incision into the sac was sewed to the abdominal wound, and a drainage tube put in. In one of these a ventral hernia resulted. There were three cases of exploratory incisions. In one, a patient of Dr. George D. Nutt, of Williamsport, Pa., there was a painful fibroid or a sarcoma of the womb. On February 17th I attempted to remove her ovaries, but I could not reach them, on account of firm and deeply seated pelvic adhesions. In the second, a patient of Dr. J. S. Hunt, of Easton, Pa., the abdominal section was made to determine the character of a tumor, which was a carcinoma, probably of the kidney and of the adjacent intestine. The incision, being just large enough to admit two fingers, did not enable me to make out a precise diagnosis as to the organs involved. But, as the growth was unquestionably malignant, I did not feel justified in enlarging the wound. The patient, although seventy years old, recovered promptly from the operation, but she died a few months later. The third exploratory incision was in a patient from whom I removed, on February 14, 1885, a subperitoneal, fibroid tumor of the womb, weighing eight pounds. She remained well for some months, and then began to lose flesh and to suffer from severe abdominal pains. Several tumors could now be felt filling up the abdominal cavity, and she was urgent for an operation. So, although my diagnosis leaned to malignant disease, I opened the abdomen on March 8, 1887, before a ward class at the University. The growths proved to be a sarcoma of the womb and of the ovaries, these organs being so fused together that their removal was impossible.

The case of hysterectomy consisted of the removal of a subperitoneal fibroid of the womb, with a very short pedicle. While ligating the pedicle, I tore it partly off from the womb, and the bleeding that fol-

lowed could be checked only by the thermo-cautery. The tumor weighed about two pounds, and it was removed on account of the pain it gave, and the vesical irritation which it produced.

Among the twenty-seven ovariotomies there was a larger proportion of difficult cases than usual, nor did I decline a single case. In sixteen both ovaries were removed. Twenty-three had adhesions, and drainage was resorted to twelve times. In three of these the adhesions were universal; in six very firm intestinal adhesions existed; while in three the cysts were intraligamentary, presenting very embarrassing obstacles to their removal. In one of these cases of intraligamentary cyst the operation was not completed on account of the collapse of the patient, who died seven hours later. The other two recovered, but in one of these the wound had to be reopened four hours after the completion of the operation, in order to arrest a secondary hemorrhage from deeply seated pelvic vessels. The drainage tube told the tale of internal hemorrhage, otherwise the collapse would have been attributed to shock. In this case, also from injury to the rectum, a fecal fistula was established a few days later. Here again the drainage tube did good service to the woman, saving her life for the second time.

This formidable class of cysts needs a special treatment, which I described in a paper read before this Society a few months ago. It consists, firstly, in beginning the enucleation at the vascular portions of the cyst so as to cut off the blood supply early in the operation; secondly, in preserving the capsule of broad ligament as whole as possible; and, thirdly, in isolating the capsular cavity from the peritoneal cavity, by the sewing of the edges of the former to the abdominal wound and by the introduction of a drainage tube.

Special points of interest in my ovariotomy cases are as follows: Monsel's solution of iron was applied to oozing surfaces in Cases 194, 197, 198, and 209. In the first one it was applied to a bleeding intestine, from which the peritoneal coat had been stripped off. This patient died from obstruction of the bowels, due, as I believe, to a kink formed by the adhesion of the raw surface to some other viscus. I do not think that the iron salt had anything to do with the fatal adhesive inflammation. In the three other cases the iron was applied to oozing surfaces on the abdominal wall, and they all recovered promptly. Oozing raw surfaces on the bowels are often troublesome, and I have had to check the hemorrhage by fine ligatures, by Monsel's solution of iron, and by the thermo-cautery at a dull heat. Of all these modes I prefer the last when practicable. But when the oozing surface is a large one, or the bowel is not readily accessible, I prefer the iron solution as the safer remedy. Nor have I ever had any reason to believe that its action has been otherwise than beneficial. Usually, in these cases, a drainage tube has been inserted, not because of the use of the iron styptic, but because of the extent of the adhesions demanding its use. In Case 198 a drainage tube was not employed.

There were three cases of colloid cyst which had burst into the cavity of the abdomen some weeks before the time of the operation. In Case 201 the left ovary had burst, and much colloid and ascitic fluid had escaped from the abdominal incision. Every abdominal organ had apparently become infected, as all peritoneal surfaces with which the colloid fluid came in contact were roughened with miliary prominences. The abdominal cavity was flushed with plain warm water and a drainage tube put in. The woman got well without a bad symptom, and, as far as I know, is now enjoying good health. In Case 205 the cyst had burst evidently from a fall, and the health of the woman began at once to fail. She rapidly grew weak and very thin, as if slowly poisoned. When she was brought to me she was wretchedly weak and emaciated, and apparently near her end. The operation revealed a colloid cyst which had burst and partly emptied itself. The cyst had universal adhesions, and every abdominal organ presented an appearance of infection analogous to that of the preceding case. The abdominal cavity was also flushed and drained. Fever did not follow the operation, but the patient grew daily weaker, and died on the seventh day from sheer exhaustion. Case 207 was also very weak and greatly emaciated. The feet were also swollen, and she was virtually bedridden. In the operation I mistook the thickened peritoneum for the wall of the cyst, especially as a large quantity of ovarian fluid and large masses of lymph had escaped from the incision into the supposed cyst, which was in reality the abdominal cavity. The peritoneum was, therefore, stripped up for some distance before the mistake was discovered. The wall of the cyst was thick, but it had wholly collapsed by an opening made into it by the outward growth of one of the papillomatous masses which it contained. Chronic peritonitis had been the result, and the intestines, covered with false membrane, were agglutinated into one small bunch lying near the stomach. Every organ in the belly was either affected or infected. Enormous quantities of dirty, ragged and broken-down false membrane filled up every nook and cranny of the abdominal cavity. Two handfuls were removed from under the liver, and many handfuls from Douglas's pouch. The contents of the abdominal cavity weighed fifty-four pounds. The stripped up portion of the parietal peritoneum was cut away, the belly flushed and drainage employed. The tube was removed on the third day, which was remarkably early, considering the gross lesions of the peritoneal cavity. The woman slowly recovered, and in the fifth week returned to her home in West Virginia.

Table of Twenty-seven Cases of Ovariotomy.

Total number.	Name and Residence of Previous Medical Attendant.	Age.	Condition	No. of children.	Place of Operation	Date of Operation.	Adhesions.	Ovary Diseased	Weight of Tumor.	Length of Incision.	Drainage.	Result.	Remarks.
190	Dr. E. Hopkins, Marshalton, Pa.	35	M.	9	Private Hosp.	Feb. 5	Pelvic.	R. L	15 lbs.	Short	None.	Recovery.	
191	Dr. W.H. H. Githens, Philadelphia.	30	M.	4	"	Feb. 5	None.	R. L.	12 "	"	"	"	
192	Dr. F. F. Smith, St. Augustine, Fla.	59	W	2	"	Feb. 10	Pelvic.	R.	13 "	"	"	"	
193	Dr. C. A. Rahter, Harrisburg, Pa.	32	S.	...	Home.	Feb. 20	None.	R. L.	3 " 15 "	"	"	"	Dermoid cyst full of hair.
194	Dr. W. W. Ives, Scranton, Pa.	48	M.	3	Private Hosp.	Mar. 2	Intestinal.	L. R.	6 " 2 "	"	Yes.	Death.	Malignant papilloma of both cysts, with dropsy.
195	Dr. J. B Marshall, Shippensburg, Pa.	43	M.	1	Home.	Mar. 11	Parietal.	L. R.	20 "	"	"	"	Malignant papilloma; died from peritonitis.
196	Dr. W Goodell, Philadelphia.	42	M.	5	Univers. Hosp.	Mar. 25	Omental, intestinal.	L.	15 "	Long.	"	Recovery.	Semi-solid cyst; ascites.
197	Dr. S. S. Good, Meyersdale, Pa.	39	M.	4	"	Apr. 1	Omental, parietal.	L.	12 "	Short.	"	"	One tapping.
198	Dr. A. Wood, Lentner, Mo.	53	M.	8	Private Hosp.	Apr. 10	Parietal.	R. L.	22 "	Long.	None.	"	
199	Dr. W. W. Johnson, Ches	19	S.	...	Univers. Hosp.	May 4	None.	R. L.	12 "	Short.	"	"	
200	Dr. J.D.W.Henderson Malvern, Pa.	60	M.	4	Private Hosp.	May 13	Omental.	L. R.	17 "	"	"	"	
201	Dr. C. W. Bachman, Reading, Pa.	30	M.	3	Univers. Hosp.	May 16	Omental.	L.	56 "	"	Yes.	"	Ruptured colloid cyst, infecting the whole peritoneum.
202	Dr. Shiner, Tamaqua, Pa.	35	M.	9	"	May 23	Omental, intestinal, pelvic.	L.	15 "	Long.	None.	"	
203	Dr. M. Christine, Philadelphia.	35	M.	4	Private Hosp.	June 2	Parietal, uterine, and ligamentous.	L. R.	28 "	"	"	"	Intra-ligamentous cyst.
204	Dr. A. S. Reynolds, Philadelphia.	35	M.	...	Univers. Hosp	June 6	Universal.	?	26 "	"	Yes	Death.	Intra-ligamentous cyst; incomplete operation; tapped once.
205	Dr. W. D. Hilliard, Ashville, N. C.	48	M.	10	Private Hosp.	Sept. 1	Universal.	L.	33 "	"	"	"	Burst colloid; every abdominal organ affected; tapped once.
206	Dr. G. S. Mitchell, Cincinnati, O.	52	M.	...	"	Sept. 4	Universal.	R.	30 "	"	"	Recovery.	Intra-ligamentary cyst.
207	Dr. R. W. Daily, Romney, W. Va.	62	M.	9	"	Sept. 6	Parietal.	R.	54 "	"	"	"	Burst papillary cyst infecting every abdominal organ.
208	Dr. J. R Umstad, Lower Providence, Pa	60	M.	6	Home.	Sept. 10	Parietal.	L. R.	21 "	Short.	None.	"	
209	Dr. H. M. Nipple, Selingsgrove, Pa.	44	M.	5	Private Hosp.	Sept. 18	Parietal.	L. R.	24 "	"	Yes.	"	Tube used on account of oozing; tapped once.
210	Dr. W. W. Dawson, Cincinnati, Ohio.	20	S.	...	"	Sept. 27	Omental.	L. R.	15 " 1 "	"	None.	"	Tapped twice.
211	Dr. J. Grove, Philadelphia.	50	M.	2	"	Oct. 27	Omental, and parietal.	L.	10 "	Long.	Yes.	Death.	Suppurating dermoid cyst.
212	Dr. E. Bennett, Barnegat, N. J.	41	S.	...	"	Nov. 22	Parietal.	R. L.	35 " 1 "	"	None.	Recovery.	
213	Dr. D. A. Hogue, Houtzdale, Pa.	33	M.	5	Univers. Hosp.	Dec. 5	Parietal, omental, intestinal.	R. L	20 " 2 "	"	Yes.	"	Right cyst gangrenous from torsion; left cyst dermoid
214	Dr. L. Schwerz, Philadelphia.	49	M.	4	Home.	Dec 10	Parietal, intestinal,	L. R.	22 "	Short.	None.	"	
215	Dr. E. L. Welling, Pennington, N. J.	26	M.	4	Univers Hosp	Dec. 16	None.	R. L.	30 "	"	"	"	
216	Dr. W. F. Shine, St. Augustine, Fla.	49	M.	...	Home.	Dec 24	Omental, parietal, intestinal.	L.	20 "	"	"	"	Had septicæmia at time of operation; had three tappings.

In Cases 196, 211, and 213 the cyst burst during the process of breaking up adhesions, and some of the fluid escaped into the belly. In all such cases, although the danger is, in my opinion, overrated, I carefully cleanse the peritoneal cavity by pouring into it several jugfuls of warm water; but I do not always use a drainage tube. In Case 211 the cyst—a broken-down dermoid—contained putrid fluid, and the woman died, although drainage was resorted to. This case was, however, a bad one; the woman labored under septicæmia at the time of the operation, being, in fact, confined to her bed, and her death is attributable more to that cause.

The after-treatment of my cases of laparotomy is a simple one. For thirty hours nothing is given by mouth save teaspoonful doses of whiskey in a tablespoonful of water, and then only when needed by delayed reaction. Milk, beef-tea, and whiskey are, however, given freely by rectal enemata when indicated by extreme thirst or by feebleness. After thirty hours have elapsed, milk or beef-tea is given by the mouth in gradually increasing amounts.

I try as much as possible to avoid the use of opiates, and usually can get along without them. But I have to leave the decision of their administration to the skilled nurses who attend my patients; for in some cases it would be cruel and even dangerous to withhold opiates when the sufferings are acute. This anodyne is given either in a rectal suppository or in the nutrient enemata when they are needed.

LOCOMOTOR ATAXIA CONFINED TO THE ARMS: REVERSAL OF ORDINARY PROGRESS.[1]

By S. WEIR MITCHELL, M.D.,
of Philadelphia.

E. C. B., M.D., of California, aged fifty-five, was in active practice until two years ago. He has no constitutional disease of any description. By his own description he was a well man up to July, 1887, possessing nearly perfect health. Near to that time he observed that, in writing with a steel pen, his hand began to change—becoming unsteady. There was no tremor, certainly none manifested in his handwriting. He only discovered that there was slightly increasing numbness in the cushions of the finger-ends of both hands, extending through the hand, up into the arm, through the chest and down over the belly and back. About September 20th, this was slightly present in the toes, but more distinctly afterward. There seem to have been no preceding eye or bladder symptoms, nor, indeed, any warning such as usually attends an outbreak of locomotor ataxia. The character of the case has not greatly changed since the first attack; it has only shown more decisively its nature. Perhaps the best description I could give of it would be that which I take from my note-book of January 15, 1888. To make clear what follows, I will state that the case is in my experience exceptional. I have seen none which I could place alongside of it. It consists of an attack of locomotor ataxia affecting practically the upper extremities. In other words, the legs now show the same condition which one is apt to see in ordinary cases of this disease in the arms after the legs are pretty well on their course of degenerative change.

Nutrition.—This gentleman weighs one hundred and thirty-eight pounds; has lost twenty pounds; his height is five feet nine inches; his limbs are thin; throughout the body the muscles are more or less flabby, notably in the upper extremities, but nothing to be called atrophy; the legs are liable to swell slightly during the day; the arms are more liable to be swollen after sleep. The patient, an accomplished physician, declares the swelling not to be at any time œdematous. It offers slight resistance to pressure, and but a part of the swelling is due to serum. There is an appearance of yellow pallor about him which caused me to request Dr. John K. Mitchell to make an examination of the blood. The result surprised me. The corpuscles amount to 3,980,000 per c.cm.; the coloring matter is seventy-five per cent. of the normal, by Fleischl's test. Certainly the appearance of the skin would seem to indicate a want of blood not shown to exist by accurate test, repeated again and again. This condition of things I have several times seen in posterior sclerosis, a not excessive want of color or corpuscles, and a whiteness of skin and mucous surfaces which once we would have accepted as sure evidence of anæmia.

Sensation.—There is no pain of the character of neuralgia. He says that since his boyhood he has been liable to aches in the great trochanter and between the shoulders.

Touch.—At a half inch the compass points begin to be felt as two in the finger of either hand. There is no remarkable difference between the two hands. The sensation of numbness with which the disease began is, perhaps, more pronounced in the legs now than at first; but about the clavicles the sensation in all kinds appears to be normal; also it is fair for heat and cold, but decisions as to these are less rapid in the arms than in the legs. The pain sense is everywhere preserved. I ought to add that when the left hand is chilled it is apt to cause pain to run up the arm on that side. The special senses appear to be normal.

Dr. G. E. de Schweinitz gives the following statement of the eye conditions: "Vision in each eye with correcting glasses, normal; no disturbances of accommodation and his reading glasses allow comfortable range; three degrees of insufficiency of the interni; no other muscular anomalies, except slight drooping of the right upper eyelid. Pupils present normal reactions for light and accommodation; ophthalmoscope shows fine floating vitreous opacities; distinctly gray optic disks with hazy edges and general epithelial choroiditis. Form fields are normal; there is concentric contraction of the color fields. From these facts I conclude that there is beginning gray degeneration of the optic nerves, as well as disturbances of the choroid and vitreous humor."

[1] Read before the Philadelphia Neurological Society, March 26, 1888.

Motion.—Motion is generally weak; when he walks any distance he moves slowly, and in action the arms tire more easily than the legs. He stands well with his eyes open; but with his eyes shut he sways one inch to the right and an inch and a half forward, so that his station may be stated to be good for a man in his condition. It certainly shows how little ataxic trouble there is in the lower limbs. He moves the legs well, and the common actions of the feet exhibit little incoördination in these parts. On the other hand, the upper limbs are awkward in their movements. There is a great lack of coördination in every effort to make delicate adjustments, as when he attempts to touch his nose or ear with the eyes shut or to bring the forefinger of his right hand in contact with the tip of the little finger of the left hand. He fails also in the test of weights; he is unable to tell the difference between an ounce placed in his palm and a half ounce, or an ounce and a half. I took tracings of his efforts to hold a pencil steady. They showed no tremor—less than is common, and this negative symptom is a remarkable one in ataxics. The effort to draw *a* from right to left resulted in a singular illustration of defective co-ordination.

Electrical reactions.—There are no unusual peculiarities.

Muscular reaction.—All the muscles of the arms react to a direct blow, but are incapable of being reinforced by motion. The leg muscles have, as I judge, about the normal amount of response to the hammer blow, but are readily reinforced by hand motions. It is interesting to contrast these conditions of the leg and arm muscles. Elbow-jerk is lost on both sides, and non-reinforcible by motion or sensation. Knee-jerk is *excessive* on both sides and is easily reinforced. Ankle-jerk is also extreme, and when powerfully reinforced a slight clonus exists. Thus, if the tip of the foot be pushed upward so as to stretch the tendo Achillis, the blow on it results in two or three forward movements of the foot; at the same time, the patient makes a powerful motor reinforcement. I remark in this case, as I have done in others, that a blow on the left patellar tendon gives rise to motion in the left leg, also to what seems to be a reflex jerk of the left arm. I suspect that this phenomenon is due to the strong reinforcements produced by emotion; for, while it is frequently seen in the first interview with the patient, it may be impossible to evolve it at another sitting.

Secretions.—Generally normal; occasional diarrhœa; no painful gastric crises. There is no trouble with the bladder or rectum. Sexual power is lost.

Reflexes.—Skin irritations of the soles of the feet appear to cause no motion. Testicle reflexes absent, as also abdominal reflexes.

Remarks.—This case stands alone in my experience. It is a locomotor ataxia beginning in the arms. These lose their tendon reactions, but show excess of direct mechanical excitability. In the legs we find excessive knee-jerk and normal mechanical responses. The conditions seen in common cases of ataxia are here reversed. I have little doubt that in the earliest stages of this disease the tendon reactions are excessive.

SIX CASES OF EPIDEMIC CEREBRO-SPINAL MENINGITIS.[1]

By CHARLES K. MILLS, M.D.,
and
W. C. CAHALL, M.D.,
of Philadelphia.

Of the six cases briefly detailed in this communication, five were observed at the Falls of Schuylkill, Philadelphia, and one in the southwestern portion of Philadelphia. At the Falls of Schuylkill several other cases have recently been observed, and it is interesting to recall that it was in this neighborhood, during 1864 and 1865, that the disease was widely prevalent and very virulent. In the first case an elaborate autopsy was made, which gives the case a distinct scientific value; in the other cases, certain special points of interest make them worthy of being recorded. They are reported briefly so as not to load the paper with unnecessary details. The first four cases occurred in the practice of Dr. Cahall, and two of them were seen by Dr. Mills in consultation; the fifth was a patient of Dr. J. V. Kelley, of Manayunk, Philadelphia; the sixth was a patient of Dr. J. W. Dick, and was seen several times by Dr. Mills in consultation.

Case I.—Mrs. W., aged thirty, the mother of three children, had had bad health since the birth of her last child, now two years old. She was greatly depressed in spirits and imagined she had all sorts of diseases, but for a few months she had regained, to a considerable degree, her former health and spirits.

February 21, 1888, she was taken with chills and headache, and on the morning of the 22d, when first seen by Dr. Cahall, she complained of acute pains down both legs, but more intense in the posterior aspect of the knee-joints, any movements of the limbs causing her to scream with pain. She already had headaches, contraction of the muscles of the neck; and ten to fifteen irregularly shaped spots of a color from pink to purple, and from the size of a pea to a silver dime, were scattered over the legs and abdomen. Diarrhœa, abdominal distention, and tenderness were present from the first. Delirium came on by the morning of the 23d, with lucid intervals, when she said she saw everything double. All the other symptoms were intensified.

On the 24th she was totally blind and partially deaf, but when aroused could give sensible answers to questions. She still complained of the headache, but not of the legs unless pressure was made along the course of the nerves, when she would cry out as though suffering great pain. The pulse was rapid, but the temperature was never over 103°. There was general hyperæsthesia.

[1] Read before the Philadelphia Neurological Society, March 26, 1888.

On the 25th she sank into a stupor, from which it was gradually more and more difficult to arouse her. She died upon the morning of the 29th, on the eight day of her sickness.

Dr. Mills saw her in consultation the day before her death.

Autopsy.—Drs. A. H. P. Leuf and Judson Daland performed the autopsy, at which the writers were present, and examined the specimens. The following are the results of the megascopic examination.

Brain: The pericranium was very vascular. The veins of the dura mater were gorged with dark venous blood on the outside, and the inner side of the membrane showed marked arterial injection. It was adherent to the convexity of the right hemisphere at the upper border of the quadrate lobule. In front of this on both sides, were Pacchionian adhesions of the dura to the brain. The anterior lobes of the brain, especially on their convexity near the great median fissure, were œdematous, with a few slight opacities of the pia. At the base was seen liquid and semi-liquid pus about the optic chiasm, interpeduncular space, pons, and oblongata. The auditory and facial nerves were bathed in pus, as were, in fact, all the nerves at the base of the brain except the olfactories. All the cranial nerves were soft, especially the olfactory and optic. Softening of the crura cerebri, pons, crura cerebelli, and oblongata was also decided. The pia covering the isthmus was intensely injected, but this could only be seen by the removal of the pus that covered it. The arachnoid between the medulla and cerebellum was also covered by a thick layer of pus.

The puncta cruenta were well marked, numerous, and dark. The basal ganglia were normal, except some venous puncta. The fornix was softened. The fissure of Sylvius presented nothing abnormal on either side when opened for inspection; and all the cerebral vessels appeared normal.

Spinal cord: On opening the spinal canal, the cord lay flat and spread out in its membranes, instead of being narrow for the canal, and bulging with well-marked convexity. The dural vessels were well injected externally and internally. On section of the dura pus exuded freely. The membranous coverings of the spinal nerves within the canals were almost ecchymotic. This was most noticeable in those given off opposite the lumbar enlargement, and especially on the left side. The whole cord was surrounded with yellow creamy pus. The lower half of the back of the cord was covered with a yellow gelatiniform pus layer, while the same covering was found on only the lower two inches in front. All the pus was situated between the dura and pia. The anterior and posterior spinal vessels were gorged with blood, and there was a fine injection of the arterioles of pia and dura. A few adhesions between the pia and dura were noticed behind, but many throughout the whole length of the cord in front.

Peripheral nerves: The lower end of the left sciatic in its two divisions (the internal and external popliteal) were removed; they were marked externally by several distended bloodvessels. On the right side this was not so noticeable as on the left. The second, third, and fourth digital nerves of the dorsum of the right foot presented nothing abnormal, but slight pressure at the end with forceps caused some blood to appear. The same was true of the second and third digitals of the dorsum of the left foot.

Muscles: A piece of muscle was excised from the lower end of each semimembranosus. To the naked eye it presented nothing abnormal.

Thoracic and abdominal viscera: Careful examination showed the lungs to be crepitant throughout and apparently entirely normal. The pleural cavities were free from effusion. A few adhesions were present on the right side, and numerous adhesions on the left, many of which were evidently quite old.

So far as could be determined by careful naked-eye examination, the heart and aorta, intestines, liver, and kidneys were normal.

The stomach was normal in size, but here and there, under the mucous membrane, were seen small extravasations of blood. The spleen was twice its normal size, but of firm consistence, and its capsule normal. The uterus and its appendages were normal in size, shape, and position. The endometrium was somewhat thickened, and of a dark red color; there were considerable submucous extravasations of blood.

Marked evidences of recent moderate, adherent peritonitis were found. This was particularly noticeable on the surface and between the coils of the small intestine. At no place did the layer of lymph exceed the thickness of a sheet of paper, and the peritoneal cavity contained no liquid effusion.

A small drop of purulent-looking substance from the thick exudation covering the spinal cord was examined microscopically by Dr. Daland, and showed numerous leucocytes imbedded in a gelatinous-like substance, probably lymph; apparently there was not as much pus as would be expected from the marked yellow color.

CASE II.—N. W., aged eleven, daughter of Mrs. W. (Case I.), was of a nervous disposition inherited from her mother.

Three days before her mother's death the child was taken suddenly ill with pain in her left leg below the knee, particularly severe around the ankle-joint. Slight redness and swelling were perceived about this joint.

Tincture of opium and sodium salicylate were prescribed, and on the following morning the leg was much better, but her neck was painful and drawn to the left side, from contraction of the sterno-cleido-mastoid muscle. There was tenderness along the spine from between the shoulders to the occiput. She did not suffer with headache and had no delirium. The special senses remained normal. The bowels were constipated. In the evening a slight rise of temperature was noticed, but her pulse was slower than normal.

Under ordinary circumstances the case would probably have been dismissed as an ordinary one of rheumatic or neuralgic torticollis, but the patient's mother was lying up stairs with an undoubted attack of cerebro-spinal meningitis, which had commenced in a similar though more violent manner. This aroused

suspicion as to a similar cause for the two attacks. An eruption was looked for, but did not appear until the fourth day, when five spots, two pink and three purple, made their appearance on the legs and lower part of the abdomen.

The tincture of opium and sodium salicylate were continued in moderately large doses. Friction and counter-irritation were used upon the neck, but the contraction and tenderness on pressure remained in a marked degree for several days, and did not finally disappear for several days longer.

Case III.—M. M., aged twenty-four, a mill-girl, had a history both in herself and in the female portion of her family, of a highly nervous temperament. On the 16th of January, while enjoying her usual health, she had gone to her work. During a passionate debate among the employés as to the advisability of a strike, which she opposed, she proceeded, with the others, to the sidewalk, laboring under great mental excitement. The day was very cold, and shortly after reaching the windy street, she fell to the pavement screaming with a pain in her neck. She was taken to the house of a neighboring physician, who gave her two hypodermatic injections of morphia, after which she was brought home. At first she complained of nothing except the intense pain in the neck. The head was drawn backward. She had no fever; pulse 60. The day following her neck was about the same, while an intense headache of a constricting character was added. The mental faculties were clear and all the functions of the body were well performed. Fever was still absent, and pulse 60.

After the use for two or three days of morphia, bromide, and chloral, without the slightest improvement, hysteria was suspected, but later a genuine organic disease seemed manifest. At about the end of a week she complained of great pain in both legs, and especially upon pressure over the nerves. Dr. Mills saw her at this time in consultation. While the pain in the legs continued the headache and neckache were greatly lessened. Morphia, sodium salicylate, and oil of gaultheria were given, under which the pain in the legs disappeared. The headache never returned with its first intensity, but an active delirium took its place. Illusions and delusions kept her in a state of excitement for days with scarcely any sleep, in spite of large doses of anodynes. The drawn state of the neck was persistent. Fever came on, although never high. The pulse continued slow.

The patient drifted from bad to worse. The active delirium gave place to a heavy stupor, when it was difficult to administer either medicine or nourishment; but as nourishment was considered the most pressing need, it was regularly and persistently forced upon the patient. A flea-bite eruption appeared on the arms, face, and neck, but not until after the second week. The eruption would disappear and reappear, but never so distinctly as at first.

For three weeks longer, or to the fifth week of the sickness, the patient's mental condition remained practically unchanged. Iodide of potassium, 5 grains and bichloride of mercury $\frac{1}{48}$th grain were given three times a day. In three days the girl's mind was perfectly clear, and she remembered her sickness only as a disagreeable dream.

Case IV.—R. L., aged nineteen, a mill girl, was taken suddenly ill while at her work upon the 1st of March. An intense headache followed by chills ushered in a high fever. Her temperature was 103.5° the first evening. She complained of pain in the limbs and neck, but there was no contraction of the muscles of the neck until March 3d. Nausea and vomiting were present during the first three days, and during the nights of the same days the patient was delirious.

Pills of opium and quinine, with an effervescing fever mixture, reduced the temperature by March 4th to 100° F., above which it never again rose. From the 4th to the 9th the case remained at a standstill. The headache was greatly better, but the contraction of the muscles of the neck was increased, fixing the head immovably backward. Hyperæsthesia and deep-seated pain upon slight pressure were present over the whole posterior region of the neck. The patient complained of feebleness and exhaustion. On the 9th, the opium and quinine were given at longer intervals, and iodide of potassium 5 grains, and bichloride of mercury $\frac{1}{48}$th grain, four times a day.

In two days the patient was sitting up with fever gone, neck greatly relieved, and appetite and sleep returned. Her convalescence was from this date forward rapid and complete. No spots were found in this case.

Case V.—Notes of the following case were furnished by Dr. J. V. Kelley, of Manayunk, Philadelphia:

The patient, a young man, was first seen February 18, 1888. He was in good health until the preceding day, when in the evening he was taken with a chill, vomited twice, and had two stools. He worked during the forenoon of the day he was taken sick, although feeling very badly. At 2 P.M., when first seen by Dr. Kelley, he was in bed and complained of great soreness. He complained of tenderness, confined to the abdomen, so much so that the case was at first thought to be one of enteritis. He was very cold; pulse 134, and he seemed much prostrated. He was placed on brandy and tonics, and the next day in a manner revived.

February 20th, he was seen by Dr. Bruen, who thought the case to be one of cerebro-spinal fever. Herpes labialis was beginning to show. The next day he had some delirium; his pulse was still 134.

On the 22d, he was seen by Dr. Pepper, who agreed that the case was one of cerebro-spinal fever. Herpes labialis was now profuse, some delirium was present, and hearing and sight both defective. He had two offensive stools, and complained of great general soreness, but had no characteristic spots, although there was a vesicular eruption on the chest. He had no retraction of the head, although his neck was somewhat stiff. His abdomen was tympanitic, and this persisted until death occurred, February 28th.

About the fifth day of his seizure the patient complained of blindness. On one occasion he bled from the nose and spat some blood. No lung or heart symptoms could be demonstrated by examination,

and the man died from prostration on the eleventh day of the disorder. He showed typhoid signs, but the case was certainly not typhoid fever. The treatment was by stimulation and tonics, with full feeding. Brandy, quinine, digitalis, opium, and turpentine were given.

Case VI.—The following interesting case occurred in the practice of Dr. J. W. Dick, and was seen by Dr. Mills several times in consultation. The patient, R. A., a boy eight years old, in the latter part of October, 1887, had an attack of mild scarlet fever, followed by slight nephritis, which kept him in the house until the last of December. After this time he began running out of doors in all sorts of weather, in his play sometimes lying down in the snow. He seemed to be in the best of health until February 2d, when he was suddenly taken sick at school. He came home complaining of violent headache, and was taken down also with vomiting and high fever, with marked delirium. The delirium soon subsided, and he sank into a semi-conscious condition. He would not answer, as a rule, any question or demand, but sometimes ask for a drink, and he would give notice when he wished to evacuate the bowels or bladder. On the fourth day an eruption appeared over the entire body, more especially marked on the face, neck, and upper extremities. The eruption consisted of small pin-point, fleabite-like spots, which did not disappear on pressure. It faded in about four days after its first appearance.

His temperature varied at first from 103° to 105° F., sometimes higher in the morning than in the evening, and sometimes the reverse. The following is the temperature record from February 17th to 26th:

February.	Morning.	Evening.
17th	104.4°	104° F.
18th	104.4	103.8
19th	103.6	103.6
20th	102.6	103.2
21st	102.4	102.6
22d	102.4	101.6
23d	102	102
24th	101	101
25th	101	101
26th	101	101

After this his temperature showed a tendency to fall, and came down to 99.5°.

His pulse was weak, but regular, varying usually from 112 to 120. His respirations ranged from about 30 to 40. The vomiting lasted only during the first day, after which he took and retained both food and medicine. His bowels were usually slightly constipated, but responded freely to enemata. After February 22d he did not attempt to speak, but lay in a comatose condition, with frequent sudden out cries, as if in pain. His abdomen became decidedly scaphoid. He was troubled with a cough throughout his entire sickness. There were abundant mucous râles, with a little dulness on percussion on the right side.

In the beginning of his sickness the slightest movement gave rise to intense pain. This gradually subsided, but he continued throughout to have great tenderness on pressure in the region of the neck and in the legs. The pain in his lower extremities was a very marked symptom; handling them, and pressure along the nerves or squeezing of the muscles, caused great suffering. No swelling of the joints was present. He exhibited some pain and tenderness in the upper extremities, but not nearly as marked as in the lower; the knee-jerks were retained. He could move the legs up and down freely, but the feet had a tendency to assume the equino-varus position; this foot-drop was more marked on the right side. No paralysis of the cranial nerves was present. For three weeks before his death he was apparently both blind and deaf; for a short time he had a slight discharge from the left ear. He died on the thirty-sixth day.

Remarks.—These cases are of considerable interest from various points of view, but we shall only be able to call attention to a few of the most important features. At a former meeting of the Society it had been suggested by Dr. Mills that neuritis was probably present as a complication or coincidence in some of the cases, and in others the infectious agent caused a multiple neuritis rather than a cerebro-spinal disease. As no microscopical examination has yet been made from the specimens of Case I, we are not able to say positively that neuritis was present, but the gross examination of the sciatic and other nerves led to the suggestion that either congestion of the nerves or neuritis was present.

A few words might be said with reference to treatment. Bromide of potassium, in half-drachm doses, failed to relieve the headache or produce sleep in the severe cases (the same result followed chloral). Nothing definite can be said as to the effect of quinine. Sodium salicylate and oil of gaultheria gave relief to the neuritic pains in the legs, but produced no appreciable benefit to the head and neck. Opium and morphia did positive good in every case, but after the more acute symptoms had passed the good effect seemed to be lost. In the two cases where iodide of potassium and the bichloride of mercury were used by Dr. Cahall, the effect was surprising to patient and physician alike. The improvement was too rapid to be the result of the alterative properties of the drugs, but more like the action of specific remedies.

MEDICAL PROGRESS.

When to give Digitalis.—The *Medical Press* writes that it has been observed that he who discovered and laid down rules for the administration of digitalis would be doing infinitely greater service to the profession than they who encumber therapeutics with new and untried though much belauded "cardiac tonics." There are difficulties in the way of any comprehensive directions for the employment of this drug, because it is sometimes observed clinically to produce distinctly beneficial results in cases where theoretically its effects are contraindicated. Dr. James Stewart has recently suggested a sign of value which we commend to practitioners. He points out that

in cases of heart failure too pronounced to allow of resort to alternate methods of treatment involving exercise the best results are obtained by rest in bed with full doses of digitalis, the supply of liquids being curtailed to the minimum. The first marked effect of cardiac failure is a fall in the aortic blood-pressure leading to diminished excretion of urine and a lowering in the vital processes generally. The diuretic power of digitalis is directly dependent on its influence in restoring the diminished pressure, and to effect this the drug must be given in full doses. The important fact to bear in mind is that when the amount of urine falls, after increasing, under digitalis, the administration of the drug should at once be suspended. The failure in the renal excretion may be taken to indicate that the heart is incapable of reacting further to the stimulus, and serious risk attends non-attention to this rule. The amount of the drug and the time required to bring about this secondary fall varies greatly according to the susceptibility of the individual to its effects. Forty minims of the tincture four times daily for three days are generally sufficient, but as much as half an ounce daily in divided doses is sometimes required. Scilliain and mercury are both direct diuretics, and are very useful in conjunction with digitalis. Caffeine is another useful diuretic, and a combination of caffeine with digitalis is very highly spoken of. In these observations we have several points of practical importance in the treatment of a very difficult class of cases.

Extirpation of the Kidney for Sarcoma; Recovery.—At a recent meeting of the Society of Physicians of Vienna von Frisch exhibited a patient from whom, four weeks previously, he had extirpated the left kidney for sarcoma. The patient had first observed a tumor beneath the margin of the ribs on the left side four months before the operation, which grew rapidly. When brought under observation a hard, non-sensitive and immovable tumor was found, which extended from the border of the ribs to the anterior superior spine of the left ilium; it gave the patient no inconvenience, and when punctured by an aspirating needle gave clear blood. An incision was made from the xiphoid process to the umbilicus, and a second incision at right angles to the first exposed the tumor; many adhesions required separation; bleeding points and the pedicle of the tumor were ligated. The tumor weighed six pounds, and proved on microscopic examination to be a round-celled sarcoma containing giant cells. Prompt recovery followed. the wound healing by first intention. — *Wiener medizinische Presse*, March 25, 1888.

Formulæ for Prescribing Iodoform.—The *Centralblatt für die gesammte Therapie* for April, 1888, gives the following formulæ:

In pill form,

Iodoform,	
Cort. cinnam.	āā gr. 30.
Extr. cascarill.	ʒ 1.

Ft. pil. 60 in num.
Sig.—Three pills daily.

Iodoform and potassium iodide may be thus given:

Iodoform.	part 1.
Potass. iodid.	parts 70.

Triturate carefully and add

Glycerin.	parts 70.
Spts. vini. rectif.	parts 200.

Dose, fifteen drops on sugar, three times daily.

Successful Reimplantation of a Trephined Button of Bone.—Burrell describes a recent trephining, in which the button of bone was successfully replaced, as follows, in the *Boston Medical and Surgical Journal* of March 29, 1888: The trephining was an exploratory one done on a boy, aged thirteen, to determine the presence or the absence of a depressed inner tablet of the skull that might have accounted for a group of existing cerebral symptoms. Operation: the child was etherized and the localization lines were drawn by Dr. W. N. Bullard; a large semilunar incision was made with the base downward, including the cicatrix; a second incision was made through the periosteum, and this was completely and freely elevated from the bone, which was then removed with a large trephine: no fracture was detected, and no abnormal appearance of the dura mater was found; an exploratory puncture with a trocar was made into the cerebral substance in the direction of the median portion of the ascending frontal convolution, entering, perhaps, four inches—no result. The bone, which had been carefully preserved in an antiseptic solution, was then carefully replaced in the skull, the periosteal flap was secured in position by a fine continuous catgut suture, and the overlying structures were similarly dealt with. Drainage being secured in the scalp by a dozen or more strands of catgut, an antiseptic dressing was applied, and the recovery from a surgical standpoint was uneventful. When the dressing was first removed at the end of two weeks, the wound was found completely united; for a short time after this a dressing was kept on the boy's head as a protection against any injury to the recently repaired structures. The child's cerebral symptoms gradually grew worse, and he finally died in the Boston Lunatic Hospital, in December, at the expiration of nearly eight months after the trephining.

Congenital Facial Paralysis.—Dr. B. H. Stephan, of Zaandam, publishes in the *Weekblad* of the Dutch *Tijdschrift voor Geneeskunde* an account of a rare case of congenital facial paralysis, the explanation of which is very obscure. The subject was a woman to whom her mother had given birth before the arrival of the medical man, the labor having, of course, been a simple, and not a prolonged one. It was very soon noticed that the two sides of the face were different in appearance, the left being "like a mask," in striking contrast to the right, which was "full of expression." The condition remained unchanged as she grew up. When seen by Dr. Stephan, the pupils were equal, and reacted equally to light. There was but little difficulty in eating or drinking, owing to practice. Sensation was equal on the two sides. The hearing was, however, somewhat dull on the left side. No difference could be detected in the tympanic membrane. Dr. Stephan, on looking up the subject in medical literature, was unable to find any description of a precisely similar case. Professor Hensch, who mentions the existence of congenital facial paralysis in his lectures on the diseases of children, on being communicated with, replied that he had scarcely ever seen a case

reported, and that he did not know of any description which had been published. Dr. Stephan believes that there are three forms of congenital facial paralysis, two of which are transient, and depend on the application of forceps or the pressure of a tumor, etc., during a prolonged labor, and a third, of which his own case is, perhaps, the only described instance, where the paralysis is permanent, and where it may, as he suggests, depend upon necrosis, the main difference between this and the other two forms being the affection of the hearing, which may, he believes, be an indication of the permanent character of the paralysis, its existence in any case being sufficient to cause the practitioner to give a guarded prognosis.—*British Medical Journal*, March 24, 1888.

Quinine, Hypodermatically.—Beurmann and Villejean, in the *Bulletin de Thérapeutique* of March 30, 1888, conclude that when *neutral* hydrochlorate of quinine cannot be readily procured the *basic* hydrochlorate, commonly found, may be used in the following prescription:

Acid. hydrochloric. pur. . . .	♏ 75.
Aquæ destill.	ʒ 3¾.
Quinine hydrochlor. (*basic*) . .	ʒ 5.

Dissolve at gentle heat and filter.

Fifteen minims of this solution contain seven and one-half grains of *neutral* hydrochlorate of quinine.

The Effect of Tight Lacing on the Secretion of Bile.—Collins writes in the *Lancet* of March 17, 1888, as follows:

In the course of a series of observations upon the secretion of bile, which I have undertaken at the instigation of Dr. Lauder Brunton, I had occasion to make biliary fistulæ upon several anæsthetized guinea-pigs. I was very soon struck by the considerable effect which respiratory movements had upon the passage of bile along the canulæ. With each descent of the diaphragm there was advance of the column of bile, and with each expiration a slight retrogression or arrest of advance. Moreover, a powerful respiratory exertion considerably augmented the outflow, and even the slightly accelerated respiration which accompanied the administration of ether was not without its distinct effect. It occurred to me to see what would be the result of placing a constricting band around the lower part of the thorax. I accordingly selected a guinea-pig in which the biliary discharge from the canula was free and in full quantity, and I collected the amount of bile secreted at regular intervals until a fair average could be obtained. I then tied a tape band about one inch wide round the guinea-pig's waist (if such, by courtesy, can be allowed to exist), reducing the circumference thereof from five inches and a quarter to four inches, but not so as to cause any formidable risk of dyspnœa. After collecting the bile secreted at stated intervals, I removed the "stays" and again collected as before. I found that before the tight lacing began bile was being secreted at the rate of 8.4 cubic centimetres per hour; during the tight lacing this fell to the rate of 4.5 cubic centimetres per hour, and after the removal of the constriction again rose to 7.8 cubic centimetres per hour. I repeated the experiment in other animals with the same result; so that it would appear that by reducing the circumference of the lower part of the thorax by about one-fourth, the bile secretion is reduced about one-half. It is useless to assert that it is bile expulsion, not bile secretion that we are dealing with here, for the bile being secreted at a pressure very slightly above that of blood pressure, the mere presence of bile in the canaliculi is to some extent detrimental to secretion behind it; whereas, the rapid evacuation of the bile channels, which free diaphragmatic movement insures, is salutary to increased elimination of bile.

Urethral Medicinal Bougies.—Von Düring, in *Monatshefte für Praktische Dermatologie*, No. 5, 1888, gives the following formula for medicinal bougies, for the local treatment of urethral affections:

Ol. cacao	6 parts.
Cer. albæ	5 "
Acid. boric. or iodoform . . .	2 "
Zinc. oxydat.	1 part.
Tragacanth.	4 parts.

These bougies may be made of any length or size desired.

A New Method for Supplying the Galvanic Current for Medical Use.—Carpenter, of Cleveland, describes his method of procuring the galvanic current for office use, as follows:

The device to which we have the pleasure of calling the attention of the profession consists simply in that of using the current of the incandescent lighting system direct from the street-wire passing the door—Thompson-Houston or Edison. We have the wires of the former system placed in our office, and by means of a rheostat resistance sufficient to reduce the current to a minimum is interposed, then by the use of an ordinary switch-board, the current is increased or diminished according as resistance is cut in or out. A millliampère-meter is made use of whereby the current is accurately measured while the patient is in the circuit.

The device is absolutely safe, as the entire voltage of the wire can be handled without the rheostat being used. My wire furnishes a very smooth continuous or galvanic current, with an electromotive force of one hundred and ten volts with a maximum strength of $\frac{11}{20}$ of an ampère, equal to about eighty Leclanché cells. This current is constant, does not vary in voltage, and is always ready, night or day, as the main line from which my connections are made is used for commercial purposes, and furnishes lighting for basements, dark shops, and rooms. This, I am informed, is the case in all large and in many small cities, so that little trouble will be met with in securing a wire with a day current. When a wire is once placed in our office, the task of caring for a battery of cells is at an end, and we have an apparatus that is at an once always ready, reliable, economical, cleanly, and durable. The rapid introduction of the incandescent lighting system, together with the great increase in the use of this form of light, will place within the reach of very many physicians this current for electrolytic work.

The charge for the annual rental of the wire is $10, not including the cost of putting in, which, if the main line passes the door, should not exceed $5. This device, as will be seen, does away with cells entirely, as well as the time, trouble, and expense of keeping them in order, and I venture to express, as my opinion, that we have a current superior to any that it is possible to have gener-

ated from chemical action, besides economy of room, which is not a small item in cramped quarters.

A word regarding the danger from contact with the electric-light wire. The Thompson-Houston or the Edison incandescent system of an electromotive force of one hundred and ten volts, and of a strength of $\frac{1}{10}$ of an ampère is harmless, *and must not be confounded with the arc system of Brush and others, as the strength of the latter is six ampères, and of course dangerous and must* never *be used.*—*Medical Record*, March 31, 1887.

The Treatment of Flatulent Dyspepsia.—The *Journal de Médecine* of March 11, 1888, gives the following formula:

Bismuth. subnit.,	
Magnesiæ pulv.	āā gr. 30.
Belladon. pulv.,	
Zingib. pulv.	āā gr. 3.

Mix carefully and divide into ten powders.

A powder should be taken in peppermint water twice daily.

Hygrine and Cocaine.—Hygrine was obtained by Dr. Ralph Stockman from distillation of so-called amorphous cocaine with water. A drop of it placed on the tongue causes a burning sensation, and it is an extremely irritating substance. Without causing special symptoms, frogs died from the subcutaneous injection of a drop of hygrine mixed with water. Considerable irritation was caused at the seat of injection, while the muscles all over the body, the bowel, and serous membranes were studded with numerous minute hemorrhages, due evidently to the local irritation of the particles of hygrine. Hence the importance of being certain that any specimen of cocaine is free from hygrine. Indeed, this communication is very instructive and important in connection with the occurrence of accidents after the injection of cocaine. The benzoic ethers formed by decomposition of cocaine are also very irritating to the mucous membranes.—*Lancet*, March 17, 1888.

The Treatment of Tuberculosis of the Peritoneum and the Hectic of Tuberculosis.—Pribram, of Prague, regards tuberculosis of the peritoneum, when the disease is general and well marked in other organs, as symptomatic, and not requiring especial treatment. When the disease is purely peritoneal, the treatment first indicated is antipyretic, hygienic, and tonic. Adonis vernalis he regards the best diuretic; he advises inunction over the belly with sapo viridis. If the process is not arrested, and absorption does not take place, palliative incision is advised when interstitial ulceration is absent. In women the ovaries and tubes should be examined. A moderate degree of lung affection does not contraindicate incision. In a question of diagnosis between peritonitis and ovarian cyst, laparotomy should be performed. Regarding the pyrexia of tuberculosis, he advises differential diagnosis between tubercular diseases and fevers, the use of antifebrin and antipyrin, and especial attention to the patient's nutrition.—*Deutsche med. Wochenschrift*, March 8, 1888.

Traumatic Epilepsy cured by Incision.—An interesting case is recorded under the above heading by M. E. Müller in the *Gaz. Médicale de Strasburg.* A butcher ran a large meat-hook into the palm of his right hand between the second and third metacarpal bones at the junction of the lower and middle thirds. There was great pain at the time of the accident, and during the course of the same night the patient had an epileptic fit. He had never previously been epileptic, nor was there any history of the disease in any of his family. At the end of five months the fits recommenced, occurring on every tenth or fifteenth day. Latterly they became worse, and reoccurred as often as twice a week. Palpation of the cicatrix gave the sensation of hardness as if a foreign body were present, but exploration revealed nothing beyond a dense fibrous cicatrix. This was excised, and after two months had elapsed, the patient still continued well.—*Medical Press*, March 21, 1888.

The Treatment of Dentition and Stomatitis.—The *Revue Gén. de Clin. et de Thérap.* of March 15, 1888, gives the following useful formulæ for the treatment of dentition and stomatitis:

For local application during dentition.

Tinct. belladonn.	ʒ 2½.
Cocain.	gr. 8.

Also

Syrup. aurant. flor.	ʒ 5.
Cocain. hydrochlor.	gr. 3.
Tinct. croci	gtt. 20.

In stomatitis, with ulceration, Comly advises

Mel. rosæ,	
Glycerin.	āā ʒ 2½.
Potass. chlorat., or sodii borat. . .	gr. 20.

The affected parts should be touched five or six times daily with cotton dipped in this mixture.

The honey may be replaced by glycerine with advantage, if fermentation continues.

The Treatment of Icterus Neonatorum.—Jacobi writes as follows on this subject, in the *Archives of Pediatrics* for April, 1888:

A certain degree of yellowish discoloration of the skin is the result of the normal changes of hæmatin deposited in the skin during the rapid transition from fœtal to postnatal circulation. When by retarded separation of the newly born from the mother, and compression of the placenta, the amount of blood in the circulation of the infant is unduly increased, this form of hæmatogene jaundice is rather more developed. The simplest form of hepatogene icterus is produced by the sudden diminution of the blood circulating in the vessels of the liver, which encourages the exosmotic transition of bile into the adjoining bloodvessels. All of these forms of jaundice require no treatment. Duodenal catarrh will produce icterus in the newly born as it does in advanced age. Thus the feeding and the digestion of the baby must be carefully watched. The routine administration of syrup of rhubarb is a mistake on the part of the female busybodies which must be discouraged. Maybe some of them can be taught that acid cow's milk and indiscriminate feeding in general, and exposure, tight bandaging, and cold feet, can do still more harm than their medicines. Icterus resulting from congenital obliteration of the large biliary ducts, or congenital cirrhosis,

or acute fatty degeneration, or epidemic hæmoglobinuria is incurable. Icterus during septic infection is a bad symptom, and rarely terminates otherwise than in death. Icterus depending on congenital syphilis of the liver is grave, but I have met with several cases which recovered. A thorough and energetic antisyphilitic treatment is in such cases the only safeguard. It may prove unsuccessful, however, because the syphilitic process of the connective tissue is not confined to the liver but extends to the rest of the organs. Mercury must be administered for a long time, a twentieth or twelfth of a grain of calomel three times a day; careful inunction of a scruple of blue ointment daily; or one-thirtieth of a grain of corrosive sublimate in a one-fifth of a per cent. solution of distilled water for subcutaneous injection daily. In the beginning of the treatment two of these medications may be combined, or one of these together with the internal administration of from three to five grains of iodide of potassium. The internal administration of the bichloride of mercury is also well tolerated; one-hundredth of a grain may be given in a teaspoonful of water, or food, every two or four hours, and continued many weeks.

Phlegmasia Dolens and Œdema in Infants.—Dr. Leon Dumas, Professor of Clinical Obstetrics and Gynecology, Montpellier, has recently contributed to the *Annales de Gynécologie et de Obstétrique* a paper on the Probable Identity of the Œdema of Newborn Children and Phlegmasia Alba Dolens.. He concludes that this œdema is but one symptom of phlegmasia dolens developed in the course of the first few days after birth. Its causes, though very varied, are essentially of the same nature as in the adult, and may be divided into predisposing and determining. The principal determining cause is the incomplete establishment of respiration, including pathological and other obstacles which that function may encounter before arriving at its perfect state of efficiency. The symptoms of phlegmasia are the same in the newborn infant as in the adult, allowing for certain modifications in relation to the special physiology of the first days of life after birth. There is likewise the same pathological anatomy in both cases; but in the child the venous thrombosis is more often situated in the inferior vena cava. The treatment should be alike in both cases, and the same dangers are to be feared in the infant and in the adult, though the relative lesser vitality of the newborn child must always render the prognosis less favorable in its case than when its mother is similarly attacked. All the precautions by which impediments to the establishment of perfect respiration are overcome, including the avoidance of hasty and immediate ligature of the umbilical cord, together constitute the true prophylaxis against the affection in question.—*British Medical Journal*, March 24, 1888.

Tuberculous Contagion from Man to Dog.—Bourgangnon, in the *Journal de Médecine* of March 18, 1888, reports the case of a phthisical patient who was constantly attended by a pet dog. The animal often lay upon his master's bed, and shared at times his meals. Shortly after the patient's death the dog succumbed to a disease which possessed all the symptoms of tuberculosis. An autopsy confirmed the diagnosis. The most common avenue of contagion between man and beast is by the digestive organs of animals; they often swallow particles of sputa.

A Formula for Corrosive Sublimate Gauze.—Lübbert and Schneider in the *Centralblatt für Bakteriologie*, No. 12, 1888, conclude from a series of investigations on different solutions of corrosive sublimate, that the following solution is the best for making gauze, not excepting the recently advised solution of Laplace, containing tartaric acid. The present solution, the writers state, is unirritating:

Hydrarg. bichlor.	3 parts.
Sodii chlorat. crud.	100 "
Aquæ destillat.	600 "
Glycerin.	100 "
Spiritus	200 "

Dissolve the sodium salt in water; to the filtrate add the sublimate; to this solution add the glycerine, and then alcohol.

Gauze should be dipped in this, wrung out, and dried. Ordinary materials require one and a half times their weight of fluid to saturate properly.

The materials commonly used to color sublimate solutions are objectionable, as many of them contain fuchsin, which decomposes sublimate.

A Caution against the Common Use of Potassium Chlorate.—The *Medical Press* writes that chlorate of potassium is a very popular remedy; so much so, indeed, that the idea of its being poisonous in certain doses never occurs to anyone. Yet it is evident that if five-grain pellets be thoughtlessly sucked at intervals throughout the day, a very considerable and certainly injurious quantity will ultimately have been absorbed. In children it gives rise to cerebral symptoms, especially "night terrors," with more or less intense prostration. It would be well if the public were cautioned now and again that they cannot with impunity assimilate indefinite quantities of a salt which in anything like large doses is an unequivocal poison.

Menstrual Bleeding from a Laparotomy Scar.—At a recent meeting of the Kïew Obstetrical and Gynæcological Society, Prof. George E. Rein showed (*Vratch*, No. 7, 1888, p. 136) a menstruating woman from whom he had about three years before removed a cyst of the right ovary weighing thirty-seven pounds, fixing the pedicle in the abdominal wound. The patient soon recovered, and the wound healed, but at one part of the scar there remained a diminutive slough, which fell off just before the beginning of menstruation, its separation being followed by a constant flow of blood from the denuded surface during the whole catamenial period. The phenomenon had regularly recurred monthly ever since. As a rule, the scar begins to bleed somewhat earlier than the uterine flow makes its appearance. The menstrual blood from the cicatrix has a characteristic odor. It is difficult to explain such an occurrence. Possibly, a Fallopian tube or one of the uterine cornua had been stitched together with the pedicle into the abdominal wound. However, Prof. Rein hopes soon to ascertain the nature of this interesting and rare case, since the patient must undergo a second laparotomy for disease of the left ovary.—*British Medical Journal*, March 31, 1888.

The Medical News.

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SATURDAY, APRIL 21, 1888.

LIEBERMEISTER ON THE TREATMENT OF PNEUMONIA.

A FEW months ago we presented our readers with a full account of the methods of treatment in pneumonia followed in the chief American hospitals. The subject is one of such practical everyday interest that no apology is necessary in presenting the views of the well-known Tübingen professor, more particularly as his treatment in some points contrasts strongly with American and English practice.

In the *Deutsche medicinische Wochenschrift* he has been discussing the etiology and symptoms of inflammation of the lungs and pulmonary tuberculosis, and in No. 9 he gives his matured experience in the treatment of the former affection. The possibility of the discovery of a specific he thinks less probable in this than in other infectious diseases, and meanwhile he follows the expectant and symptomatic plan which is based upon a clear conception of the course and dangers of the disease. The majority of deaths occur from paralysis of the heart, in consequence of the increased labor, or from heart weakness, the result of the fever. We have here our indication for treatment; for the first, stimulation; for the second, antipyresis. Abstraction of heat by external cold is preferred to drugs, which are used only when hydrotherapy fails.

Liebermeister does not regard the fever as an unmixed evil, but inclines to the view that it is reactive and conservative, an expression of the struggle which is taking place with the microbes of the disease. He employs the bath in preference to other methods, and orders one whenever the temperature reaches 104° F.. The water may be at 68° F., in which case the patient remains only ten minutes, or the time may be prolonged if the water be lukewarm and gradually cooled. The baths are given preferably after seven o'clock in the evening, as in this way the spontaneous morning remission of fever is increased. During the day, if necessary, cold sponging is employed. Experience has proved to be groundless the fear of chilling and of increasing the inflammation; on the contrary, the patients breathe more deeply, the expectoration is freer, and the entire system is refreshed and stimulated. No recent statistics are offered, but he quotes his Basle records of 150 cases treated in this way, with a mortality of only 10.5 per cent., against an average of 25 per cent. under older methods during a period of thirty years.

Antipyretic drugs, quinine, antipyrin, and antifebrin, are seldom used, and then only to maintain the action of the bath. Digitalis, which for so many years was looked upon as a substitute for bloodletting, has its uses in reducing fever and supporting the heart. Alcohol is regarded as the most important remedy against the progressive heart weakness. Bloodletting is advised in œdema of the unaffected lung. Cupping is not thought to have any influence in the inflammatory process, but it relieves the pain, a result as well obtained by hypodermic injection of morphine, or by the application of cold.

While, then, on general principles, Liebermeister's treatment of this disease corresponds closely with that employed in our hospitals, his strong advocacy of hydrotherapy, and the striking results which he quotes, should challenge the attention of clinicians. That the method is troublesome and expensive to carry out, should not stand in the way of its adoption in our hospitals, and the recent statements of Brand, together with the experience of the Lyons School, in the treatment of typhoid fever, should arouse an active interest in the method, which heretofore has scarcely received the consideration it deserves at the hands of American physicians.

FLOATING KIDNEY.

STATISTICS are proverbially elastic: the numerical method as applied to the results of therapeutics too often misleading; the personal equation the cause of many false steps in medicine. Yet we would

know little of the natural history of disease without statistics. Such work as that of Louis in enteric fever and that of Flint in pneumonia marks epochs in the progress of scientific medicine, cuts open roadways through the jungle of traditional error.

Carl Schütze has recently published a brochure on floating kidney, which is of more than passing interest. It is a statistical study from the etiological standpoint. To ten cases personally observed in Zeulzer's Polyclinic in Berlin, he has added ninety of the more fully reported cases collected in the literature, and subjected the whole number to careful analysis.

The fact noted by Ebstein, that floating kidney was found only five times in 3658 necropsies (1 : 732) at the Charité in Berlin, affords no insight into the frequency of this anomaly. For, as Landau has pointed out, the movable kidney tends in the cadaver to settle spontaneously into its normal position, and may thus very easily be overlooked. The latter observer himself, in the records from 1870 to 1879, with about 6000 necropsies, was only able to discover the records of four cases.

The most common period of life is from the twenty-fifth to the forty-fifth year; ten cases are, however, noted in the first decade of life, and four in the seventh. The condition may be congenital. In 474 cases, 405, or eighty-five per cent., were females; 69, or fifteen per cent., males. The right kidney is much more frequently displaced than the left; the right, according to Schütze's observations, 65 times; the left, 18; both, 14. The statistics of Landau, Ebstein, and Hare are in close accord with these figures. Schütze's cases go far to support the opinion that laborious occupations and strong bodily effort are of less importance etiologically than is that general relaxation of the tissues which comes of an inactive and sedentary life.

The events of sexual life in the woman, menstruation, abortion, miscarriage, parturition, are of great etiological moment, and to this general category must also be referred dislocations and diseases of the uterus and its appendages. Pregnancy has been frequently accused of causing dislocation of the kidneys, but Fritze made it clear that the gravid uterus not only does not drag the kidneys from their normal position, but tends, on the contrary, to restore them when displaced.

Very important among causative agencies is the relaxation of the abdominal walls which follows frequent childbearing, and the pendulous belly resulting from this condition. Yet Schütze found among ten women suffering from wandering kidney only two cases of pendulous belly. Wasting diseases, violent concussions of the body, tight lacing, hydronephrosis, and secondary diseases of the kidney itself, are among the causes assigned. Especially frequent as a cause is rapid wasting of the body. The bed of fat in which the kidney lies is almost invariably wanting when this organ leaves its home.

Beumer collected, up to 1878, forty-eight cases of single wandering kidney. To guard against the surgical catastrophe of the extirpation of a wandering kidney whose fellow is functionally inactive or altogether absent, it is necessary, after other diagnostic methods are exhausted, and the case has come to operation, to determine, by internal palpation, the presence or absence of the second organ. H. Braun regards the presence of congenital defects or anomalies of the sexual organs as suggestive of congenital defect or absence of a kidney. In 13 females having a single kidney only, Beumer found 8 to present some developmental defect of the uterus, ovary, or vagina of the side corresponding to the renal deficiency.

Nephrorraphy is to be preferred to the extirpation of a sound kidney. S. W. Gross's early collection of 17 cases, with 9 good results, are cited in favor of the former operation. More recently Braun, Küster, Esmarch, and others have reported similar cases with a preponderance of favorable results.

CEREBRAL SURGERY.

We learn that Dr. W. W. Keen operated, April 12th, on a second brain case with a very speedy and thus far successful result. The patient is a young man from Kansas City, twenty-five years old, who fell eighteen months ago, and had a depression over two inches long on the right side of the head, over the supra-marginal and post-Rolandic convolutions. He had had paralysis of the left wrist and hand, and four epileptic attacks.

Dr. Keen made an opening 3¼ x 1½ inches, and removed the depressed bone and the underlying dura, which was diseased and had attached to its under surface a small fragment of bone. The brain tissue was found diseased throughout the length of the scar, and at the posterior end there was a small cyst. All of this diseased brain tissue was removed. The wound was entirely united at the end of three days, and the patient out of bed on the fifth day, no rise of temperature having occurred. The patient is practically recovered.

Two points in the surgical treatment of this case, one of which was indicated by Dr. Keen in our issue of last week, give promise of future usefulness, ergot was given instead of morphia, and cocaine was applied locally to the cerebral vessels with good results in controlling the hemorrhage. The dura having been removed the trephined button of bone could not be replaced on the brain surface, but it was secured to the under surface of the flap by a catgut ligature passed through two apertures made in the bone for that purpose.

Of course the remote result as to the epilepsy and, even possibly, as to the life of the replaced bone disk, must remain for the present undetermined.

TYPHOID FEVER AT THE CINCINNATI HOSPITAL.

An Appendix to the Report of this institution for 1887 contains the statistics of the cases of typhoid fever admitted during the year, with notes by the attending physicians on treatment. Memoranda of this sort are of great interest, and it would add very much to the value of the annual reports issued from the various hospitals throughout the country if the members of the staff would take the trouble to note in this way the special features of the year's work.

Typhoid fever was epidemic in Cincinnati last year, and 209 cases were admitted to the hospital, of which 34 died, a mortality of 16.2 per cent. In Dr. Forchheimer's wards, baths were systematically employed, when the fever rose above 103°. The water was used at the temperature of the body, and cooled gradually to 70° As many as ten or twelve baths were given, if necessary, in the twenty-four hours. 51 cases were treated with 5 deaths. In Dr. Carson's wards baths were also used, and of 62 cases 4 died. Dr. J. C. MacKenzie treated 81 cases with 5 deaths. Antifebrin was used with the greatest benefit, acting well in all cases. We cannot quite reconcile these special figures with the general summary, for the cases treated in the wards of Drs. Forchheimer, Carson, and J. C. MacKenzie, added together, number 194, with 14 deaths; while the total number treated for the year is stated to be 209, with 34 deaths.

The Committee having charge of the arrangements for the International Ophthalmological Congress to be held at Heidelberg from the 9th to the 12th of August next, announce that the following subjects will be discussed: "Glaucoma," to be introduced by Priestley Smith, of Birmingham, and Snellen, of Utrecht. "Cataract," by Gayet, of Lyons, and Schweigger, of Berlin. "Bacteriology," by Leber, of Göttingen, and Sattler, of Prague. On the evening of the 11th of August the members will take supper in the Old Castle, and on the afternoon of Sunday, the 12th, the city of Heidelberg will entertain the Congress at a fête champêtre in Ziegelhausen in the valley of the Neckar, with a boat excursion on the Neckar, and an illumination of the Old Castle after sunset.

MM. Foa and Bordona Uffreduzzi have communicated to the Italian Medical Association the result of their experiments, by which they have discovered that the microbe in cerebro-spinal meningitis (meningococcus) is identical with that which Sternberg obtained by the treatment of saliva, and which Fränkel described as the microbe of pneumonia.

The Anthropological Society of Vienna, by permission of the government, has appointed a commission composed of Professors Meynert, Kundrat, and Toldt, and Surgeon-Major Weisback, to measure and photograph the skulls of the great musicians Beethoven, Mozart, Gluck, and Schubert, and prepare casts of them for the museum of anatomy of the Vienna University. It is greatly to be regretted that the location of Mozart's grave is not exactly known.

The Orthopædic Hospital of Philadelphia is the subject of extended and favorable notice in the *Journal de Médecine* of March 25, 1888. The establishment of a similar institution in Paris is urged, and the value of such hospitals is thought to be proven by their successful maintenance at London, Birmingham, Stuttgart, Bologna, and Philadelphia.

The extraordinary demand for antipyrin has caused an undue pressure upon manufacturers, and in their haste to increase their output they have become careless, especially in regard to the later processes of purification of the drug. According to Dujardin-Beaumetz, benzine has not infrequently been detected in samples submitted for analysis. This impurity may account for some of the toxic symptoms which have been reported, such as gastric disturbance, cutaneous eruptions, and even grave cerebral symptoms, more particularly in the aged.

THE water-supply of growing cities is the subject for which a prize is offered for international competition in 1893. It is one of a series of annual prizes offered by the King of the Belgians, the value of which is 25,000 francs for each award. The essays of those desiring to compete must be addressed to the Minister of Agriculture, Brussels, before January 1, 1893. Here is an opportunity for one of our American water-engineers, so fertile and thorough in these public undertakings, to win a substantial purse and reputation at the same time.

SOCIETY PROCEEDINGS.

THIRD FRENCH CONGRESS OF SURGERY.

Held in Paris from March 12 to 17, 1888.

(Specially reported for THE MEDICAL NEWS.)

The third French Congress of Surgery was presided over by Professor Verneuil, assisted by Baron Larrey, Vice-President; and Professors Gavarret, Brouardel, Maurice Perrin, Ollier, President of last year's Congress, and Pozzi, Secretary, also took places on the platform.

Professor Verneuil opened the session and delivered the presidential address. After having welcomed the foreign professional visitors to the Congress, he developed with amplitude his favorite subject of the good of the conservative method as applied to the cure of surgical affections. He then replied to an attack which was directed against French surgery, by the eminent surgeon of Vienna, Billroth, some months ago.

Professor Verneuil then passed in review the operations which are undertaken daily, when it is well known the patient cannot survive. He then passed in review all the large operations which are undertaken when necessary, by French surgeons. He then said, if we compare, in its general tendencies, surgical therapeutics in France and in foreign countries, one can affirm, without fear of contradiction, that in no country is surgery more conservative than in France.

I shall not mention the questions for discussion in the order in which they were presented, but will give first the three questions which had been proposed long ago as principal subjects to be discussed.

ON THE VALUE OF THE RADICAL CURE FOR HERNIAS, WITH REGARD TO THEIR FINAL CURE.

DR. SOCIN of Bâle, Switzerland, said that according to the discussions which have lately taken place at the Société de Chirurgie, it appears that the radical cure for hernias has become a common practice among French surgeons. In regard to his own operations, he had operated 75 times for the radical cure of non-strangulated hernias and 85 times for strangulated ones. The first series had given him two deaths and the second eleven. He had seen after operation, about 133 of his 147 patients, some a few months later, others one year, and others at the end of nine years, which proves that cure is possible, while if the others have not been entirely cured, they have, at least, derived some benefit from the operation. This operation ought to be performed in every strangulated hernia, except in cases where the intestine ought not to be reduced.

The resection of the sac, instead of being a danger, offers a new chance of success; there is no doubt that the extirpation of the tissues which have been in contact with the intestines renders the wound much more simple. He also attributed a great part of his success to the use of antiseptic measures strictly carried out. He disinfects the intestine before returning it to the abdominal cavity.

The indications for the cure of non-strangulated hernias, he thinks, are in young subjects of either sex below twenty, in whom the classical treatment by bandage does not succeed in retaining the hernia reduced in a complete and absolutely permanent manner; in adults, when the bandage does not retain the hernia completely in an easy and non-painful position.

The chances of success are much greater when the subject is young and the hernia small and recent. This is easy to understand; in young subjects hernias are always congenital, that is to say, they are due to the persistence of the vagino-peritoneal canal, and this abnormal disposition constitutes the whole disease. Take away this canal, and the subject then finds himself well formed and the cure is really radical. This explains the success he had obtained in subjects below twenty-five, about 62 per cent. of complete recovery.

In elderly subjects the sac is not our only trouble, we must consider the lengthening of the mesentery, the adipose excess of the epiploon, the weakness of the walls and rings, all conditions which cannot be remedied by the extirpation of the sac alone. In this condition his successes above twenty-five years have been only 42 per cent.

The existence of a double hernia in a patient, or in the direct family, diminishes the chances of success. Hard physical work does not conduce to the return of the trouble. The application of a bandage after the operation is useless, often harmful. The operation is without danger in simple cases, the danger only appearing in very old subjects and when the hernial tumor is very large, so large that the skin is ulcerated.

The operation consists in the total extirpation of the hernial sac above its neck. Suture of the pillars of the ring is only exceptionally necessary. In longitudinal hernias sections might present difficulties, but succeed in the majority of cases. In case of testicular ectopia with atrophy, the testicle must be removed with the sac.

DR. THIRIAR, of Brussels, said that during the last two years he had operated upon 26 cases of hernia; 12 times for a strangulation, 14 times to take away the infirmity. Of his 12 kelotomies for strangulated hernia he has tried the radical cure in 7 cases. He had the statistics of 21 operations with one death, the patient, aged sixty-four years, died on the sixteenth day from alcoholic encephalitis. The peritoneal cavity was normal.

He has only seen four of those who were operated upon more than three months ago. The first man, sixty-three years of age, had two large irreducible inguinal hernias, he was operated on on both sides at the same time. On the right he had healing by first intention, on the left, suppuration occurred. The hernia has returned on the right side, on the left it is cured.

The second man, sixty-five years of age, had a large

right inguinal adherent hernia. Operation very long; has to-day a point of hernia easily reduced.

The third man, forty years of age, a voluminous inguinal, irreducible, and painful hernia. The sac contained the convolutions of the large intestine and the small intestine. The dissection was very difficult, the spermatic artery being cut. The patient actually wears no truss, appears entirely cured, but the testicle is atrophied.

The fourth, thirty-three years old, was operated on twice, the first time for a right enterocele and then for left adherent epiplocele, He is doing very well; cured.

He operates following the method of Lucas-Championnière. He always sutures the rings. He drains through the scrotum, and never has a bandage worn. He only operates when a hernia is irreducible or incoercible, when it is painful, when it is congenital and accompanied by testicular ectopia, or when it is maintained with difficulty by a truss and there is danger of strangulation. In these conditions he estimates the radical cure for hernias an excellent operation.

Dr. Leonté, of Bucharest, employs the following method: after incision of the sac and reduction of the intestine the internal surfaces of the sac as well as of its neck are exposed. He then incises in a circular manner the serous membrane on a level with the neck; immediately the two serous borders, the result of the incision, separate themselves, leaving exposed the subjacent cellular tissue. The serous layer of the superior border has even a tendency to recoil itself inwardly; he aids this inward recoiling by detaching and pushing this serous layer either with his nail or with his tissue-forceps. In this manner he obliterates the superior orifice of the hernial tract. To complete this obliteration he passes the catgut round all the surface which has been denuded of the serous layer, and drawing the two ends together the opening is closed like a purse. He does not extirpate the subjacent sac, but he scrapes its external surface, and adjusts with silver wire or silk the walls of the sac and those of the skin in the same suture.

After the cure he forbids the use of a truss. By this method he has had 7 successes out of 7 cases. He always obtained an immediate healing. As to a return of the trouble, he has not seen a sign in one case as yet. One of his patients was operated upon two and a half years ago. The conclusions are these: 1. The operation is shorter and less painful. 2. No danger of wounding the organs of the cord. 3. One reinforces the superior ring by uniting the walls of the sac, which by their adhesions give a true pillar sustaining the cicatrix.

Dr. Mollière, of Lyons, said that kelotomy is an operation without gravity by itself, if one has thought the contrary it is because he has confused the dangers of kelotomy with those of strangulated hernia. He operates as follows: 1. Isolates, without opening it, the hernial tumor. This dissection is easy, whatever the hernia might be, it is a little longer with inguinal hernias. In an umbilical hernia the navel must be cut away; without this precaution one could not isolate the sac. 2. The sac being isolated it is to be opened in its prominent part and the contained viscera examined. 3. To liberate the hernia an incision is made in the constriction outside the sac, and the neck dilated when the hernia is strangulated, with a blunt instrument, and the intestine reduced. 4. Finally, the sac is ligated with an elastic thread very tightly applied. In making this ligature one draws very strongly on the sac, so that the ligature catches the peritoneal cul-de-sac above it. He has verified, long after the operation, by autopsy, the radical cure of the hernia.

Dr. Routier, of Paris, had performed fourteen operations for the radical cure, and he advises the total extirpation of the sac, with a ligature applied at the base; the suture of the pillars appears to him useless. Out of the fourteen cases he has had fourteen cures; six patients only had been seen who had been operated on at least fifteen months before. All were cured; one only has a return, the sac, for certain particular reasons, had not been extirpated, but only scraped. Two cases were umbilical or para-umbilical hernias, and remained cured without the use of a bandage. The other twelve are inguino-scrotal hernias, some irreducible from adhesions, others incoercible.

He advises the use of a light truss, which acts as a preventive against the reproduction of a hernia, to which patients are always predisposed, on account of the nature of their abdominal walls. According to his practice, the operation is a successful one, and he recommends it, first, for any strangulated hernia in which the intestine can be returned; second, for any hernia that cannot be constantly, completely, and easily kept reduced.

Prof. Trélat, of Paris, said there would soon be an understanding on the question of radical cure for hernias, which term he condemns, as it leads surgeons to believe in an absolute cure, while only a simplified condition of the trouble is obtained; he prefers the words, operative or surgical cure.

As regards the indications for an intervention, he thinks that the easily reducible and maintained hernias ought not to be operated upon, for in forty per cent. of these cases the patient is obliged to wear a bandage after the operation. We must interfere only in those in which irreducibility in any form is present, however small the irreducible portion may be, should it only be a band which at the moment of the reduction carried with it the sac or the testicle; the operation is also indicated for the impossible or too difficultly maintainable hernias.

It is the simplification of complicated and adherent hernias which is the real conquest accomplished for the surgical cure of hernias; it saves individuals condemned to a certain death at a more or less distant time. He is convinced that intervention limited to this series of hernias would suffice to prolong notably the average lifetime of hernial patients.

In lucky cases one can obtain the total cure; it has been realized in sixty per cent. of the cases. But this probability plays a much less important part than the successful operative intervention: for a lecture, he had collected, in one evening, about 160 cases, without one death, nearly all done by foreign surgeons. There had been stated lately at the Société de Chirurgie, several very fortunate series, giving about 130 cases. Adding to those 17 operations made in his own wards, we get the respectable number of 307 cases without one death. This is not a statistical study; he had only picked like flowers the facts which offered themselves to him, and which really are surgical flowers. Uniting all these known facts, we arrive at a mortality of 0.04 per cent. Although death is possible in certain grave cases, yet he knows of no more successful surgical operation. This is the reason why the radical cure has been so rapidly admitted by the surgeons

of every country; it is an operation without gravity, without mortality; it does away with danger, and reduces to its minimum a disagreeable infirmity. He had himself resisted a long time, but he had finally been converted, and had abandoned the practice of progressive and laborious reductions of adherent hernias, which he to-day considered a bad practice.

This operation unites most of the conditions requested by Prof. Verneuil; if it is not always simple, it is successful if aseptic, and it will be efficacious every time one conforms to the rules laid down by M. Lucas Championnière; it replaces an infirmity by a hardly visible cicatrix.

Dr. J. Bœckel, of Strasbourg, had made twelve operations for the radical cure, which he had been able to see again. Five were non-strangulated hernias, three voluminous and incoercibles, and two partially irreducible, and seven strangulated hernias. His results have not been very encouraging; he lost two patients: one, on the fifth day, from acute septicæmia from gangrene of the scrotum; the other, from delirium tremens after the cure of the wound. Out of the ten surviving ones, two have had a return of their hernias—which, it is true, at the end of seven years, remained reducible and well maintained. An old man, having had a laparo-herniotomy performed, without a radical cure, had seen a point of hernia appear at the end of three years; another patient, operated on in the same condition three years ago, presented no return of the trouble; three have been without return after ten, twelve, and eighteen months; the last three have been seen without return in the last six or seven years. All wear trusses. After having tried, in numerous cases, all the other operative procedures recommended, he had finally adopted the one of M. Lucas Championnière.

Dr. J. Lucas Championnière, of Paris, made a great distinction between the operations for non-strangulated and strangulated hernias; the operations for strangulated hernias are done too rapidly, hence ought to be systematically excluded from the present discussion. He has made eighty-one operations for radical cure. The first two operations were done seven years ago, and the two patients need a truss: but one had not been operated upon according to the rules he follows now, and the other had an enormous hernia. One can judge at the end of the sixth week whether an operation will or will not be curative. As regards mortality, he had lost only the last patient on whom he operated, but this does not change his opinion in regard to the successful character of the operation—it was a voluminous tumor in an emphysematous patient, he operated away from his service, had not his usual assistants, so that the operation lasted two and a half hours. The patient was well for two days, but in the evening he was attacked by a pulmonary congestion, of which he died. If he had been closely watched, as he would have been in his wards, perhaps a great number of cups applied would have saved him. This case is not comparable to the others, and he might just as well have lost a woman upon whom he had operated for an umbilical hernia of thirty inches circumference. If there remains a large orifice, the bandage is quite necessary. In the other cases, it only serves to atrophy the cicatrix, and he only applies a truss above the hernial canal, which protects against any intestinal pressure.

He did not see why we should not also operate for radical cure, in those cases which are outside the rules laid down for intervention, as this cure can be obtained in favorable cases. He had himself operated upon several children, and he is certain he will have excellent results; the congenital hernia, in particular, is an absolute indication on account of the integrity of the rest of the abdominal walls, which can be fortified by special gymnastics.

Above all others, one must operate upon hernias which grow rapidly, for radical cure has three enemies: pulmonary congestion—very dangerous in old subjects and in large hernias; the large intestine, which renders the operation difficult and the return of the trouble certain; finally, the organic breaking down of old hernial patients who are troubled with albuminuria or glycosuria. He always operates upon small hernias before their volume renders these operations more dangerous and less efficacious.

Dr. Segond, of Paris, asked, Is the operation for hernia a radical cure, or not? He had made fourteen kelotomies for non-strangulated hernias, and thirty times for strangulated hernias. His forty-four cases led him to the following conclusion: As regards the successful character of the operation and the operative risks, he considers only his first fourteen operations. He had no deaths. When he analyzed his thirty kelotomies for strangulated hernias, he finds that five of his patients died: one, an old man, from pulmonary congestion; another from tetanus, and three as a result of the strangulation. This shows that the operation for radical cure does not increase the gravity of the intervention.

As regards the immediate results, all the patients are satisfied, and the relief they experience encourages them to ask a second operation when this becomes necessary. As to the definite value of the surgical cure, he had seen about one-half of his patients again. Two were definitely cured, while the others lost all the benefit which had been derived from the operation.

His indications are the same as those laid down by Prof. Trélat. He tries to apply a ligature as high up the sac as he can. The dissection is not always easy, where one wants to save the spermatic cord. He has been obliged on two occasions to give up a too timorous dissection.

The trusses he uses after the operation are very light and easy, and have nothing in common with those instruments of torture that are applied before the operation.

M. Schwartz, of Paris, had had occasion to treat one non-strangulated hernia: a man of thirty-six years, with signs of tuberculosis, having an inguinal hernia the size of a child's head, irreducible, and very painful. After he had incised the sac, he felt upon the large intestine the sigmoid flexure with its surrounding parts, which had acquired the volume of a fist, while the thickness of the intestinal walls measured more than one-third of an inch. There were no adhesions, and this increase in volume was the only cause of irreduction, so much so that he had to incise about 1½ inches of the hernial ring, which already admitted four fingers. As he was unable to place a ligature upon the sac, he applied sutures on the pillars. Although the patient wore a bandage, the cure only persisted three months; at the end of seven months the hernia had already a large volume. The patient died of tuberculosis, at the end of nine months.

Dr. L. G. Richelot, of Paris, admitted the conclusions of M. Championnière, and he divides hernias into three

classes: 1, simple hernias; 2, complicated hernias; 3, hernias of old age and cachectics. The simple hernias of young people ought not to return after the operation; there is a complete anatomical restitution.

Complicated hernias are usually old, with large rings, voluminous, irreducible, adherent. Radical cure is less certain, still we get definite cure. In complicated hernias, when the cure does not maintain itself, we always have a suppression of the accident. In complicated hernias, complete cure is often obtained; if it does not take place, the return of the trouble is only an insignificant, easily tolerated pointing.

In hernias of old people and cachectics, diabetes, albuminuria, etc., are contraindications to the operation; also in emphysematous old people with large tumors. He has, however, on two occasions, operated on a man of seventy years of age, who lived in his bed, without moving, with two enormous hernias. The first time he returned into the abdomen a mass of the small and large intestine; union took place immediately. Encouraged by this result, he operated two months later on the opposite side, without any local accident or trace of peritonitis, but a pulmonary congestion appeared on the third day, and killed the patient.

Dr. Le Bec, of Paris, has operated on a man sixty-five years old, having a fistula situated in the middle of the scrotum. He wears a bandage. The testicle appeared normal, but the cord was covered by a fistulous tract, which formed a mass of the volume of the little finger, resembling a tubercular, suppurating mass and part of the vas deferens. He decided to attempt the radical cure. After incising the skin, he found an elongated mass, of the volume of the little finger, appearing to be the spermatic cord thickened by inflammation. The spermatic vessels were dissected; he found the vas deferens enclosed in a mass of inflammatory tissue, but unluckily it broke, which decided him to take away the testicle. The patient being old, there was no great objection. In dissecting the inflammatory mass, he found that it was continuous with the sac, and extended to the external inguinal ring, and from there penetrated into the abdomen. It was the ileo-cæcal appendix, which was adherent to the sac. The rounded extremity being inflamed, and keeping up the fistula, he opened the sac on its lateral parts. The adherent and suppurating extremity was carefully detached and ligatured, the whole being returned into the abdomen. The patient was cured, and only had a small abscess under the cicatrix, owing to faulty drainage. He saw the patient five months later; he was wearing a truss, and felt perfectly well.

CHRONIC SUPPURATIONS OF THE PLEURA AND THEIR TREATMENT.

Prof. Le Fort, of Paris, thinks the Letievant-Estlander operation a very good one. If there exists a large suppurating cavity, the operation is not successful, even if a great number of ribs are resected. He remarked that when the operation of empyema was first resorted to, the persistent fistulæ was much rarer than it is in our day. At first, when the pleura was opened, it was washed out, and the opening kept patent with a piece of cotton. Since then, this cotton has been replaced by drainage tubes which help the evacuation of the suppuration of the pleura, but which, remaining open, allows the air to enter freely the thorax. Under such conditions, the aspiration of the thoracic walls can have no more action on the lung, which remains retracted, and its expansion, which is one of the conditions most favorable to obliteration of the diseased cavity, is rendered much more difficult. He thinks we would have more frequent cures of empyema if we could so arrange that after having placed drainage tubes we could prevent the air from going through them in the intervals between the syringing out.

One of his patients presented a singular phenomenon. He had a fistula admitting about 4 ounces of liquid easily. One day, after convalescence had set in, when no more syringing out was done, he injected 3 ounces of liquid. Immediately the patient had a syncope, and he feared very much for his life. Following this accident he had a paralysis of the extremities which passed very slowly away. He thought he must have had a medullary apoplexy the primary cause of which was unknown.

Dr. J. Thiriar, of Brussels, in the past four years had operated on thirteen patients suffering from purulent pleurisy with fistulæ. They had necessitated nineteen operations for thoracoplasty. Twice the costal resection had been the first step of pneumotomy, and once it was made according to the modifications brought about by Schede and Sprengel—that is, the old thoracic wall, except the skin, had been resected. Only one patient died from the effects of cold; eleven were cured, and one female patient had only a small fistula.

Of the ten cases, seven were operated upon once; a child of twelve years had been operated upon twice; a man of twenty, three times; a woman of twenty-nine years, also three times.

A man of twenty, had a left purulent pleurisy with fistula. On September 7, 1885, he resected from the fourth, fifth, sixth, seventh, and eighth ribs, about 1½ to 3 inches of each. At the second dressing he was told the drainage tube had fallen ont, and a drainage tube was presented to him as being the one. He left the hospital on October 11th apparently cured. Two weeks later a new abscess opened; the patient entered his ward in January, 1886, and he took away about 4 to 5 inches of the fifth, sixth, seventh, and eighth ribs. The patient left the hospital on May 26th, with a fistula. The patient was subjected to a third operation on October 26, 1887. To the five already resected ribs, he resected 1 inch of the second rib, 3 inches of the third rib, and 2½ inches of the ninth rib; the pleura was at the same time thoroughly curetted. In June, suppuration being still very profuse, he undertook the resection of the pleura and thoracic wall. After having dissected the skin, he took away with the ordinary costotome, a fragment of the thoracic cavity, starting at the tenth rib and extending to the clavicle. He then discovered a very large drainage tube, calibre No. 10, and 16 inches long. He took it away, and after a careful curetting of the pleura, especially below the clavicle, he sutured the cutaneous flaps. On August 30th, the man left the hospital, absolutely cured. He has seen him since; he is perfectly well.

After having tried different methods, he makes his costal resections with one single transverse incision; he can easily resect seven or eight ribs, and he obtains ordinarily union by first intention. The extent, length, and number of ribs to be resected are subordinate to the extent of the affection. He places his resections as far from the lung as he can—that is, in the anterior part of

the thorax. He does this to such an extent, that when he has cut the rib at its posterior part, he seizes it with a forceps and tears it from its anterior cartilaginous insertions. He tries to avoid injections in the pleural cavity, which he has thoroughly disinfected at the time of the operation, and he helps the restoration of the thoracic wall by the application of an elastic band.

DR. J. BŒCKEL, of Strasburg, has made twelve Estlander's operations; he has had nine cures and three deaths. The three deaths were, the first, tuberculous; the second, cardiac; and the third, suffering from albuminuria. The other nine operations give us, six complete cures, one temporary cure, two incomplete ones. Of the two incomplete cures, that is with fistula, one was in a child who died later on from phthisis; the other in an adult of thirty-five years, on whom he made a second operation.

Want of success is due to the fact of a too timid resection; this was his weakness in his first operations. If it is necessary to obtain a falling down of the chest to resect the rib above and behind, one is justified in resecting the scapula. In certain cases incision and excision of the pleura become necessary.

DR. VIEUSSE, of Toulouse, has made three operations; one died in forty-eight hours after the operation of septicæmia; the two others were cured. In one of the cases the fistula was at the angle of the rib.

DR. DELORME, of Paris, finds that amongst the causes of non-success is the too great limitation of the costal resection, which renders it impossible mechanically for the suppurating cavity to close. The thoracic cavity, to take the position of the *chord* of the excised costal arc, only needs to be depressed 1¼ inches, which demonstrates that a cavity more than 1¼ inches deep cannot be closed by the sole retraction of the thoracic walls deprived of its skeleton. It would be quite different if to the bony excisions one would add the resection of the soft tissues vertically, as high up as the cavity, and that afterward the flaps should be pushed in contact with the opposite parietes of the cavity. If the cavity should extend beyond the limit of the excision, one could obliterate the lateral cul-de-sac with the folding in of the parietes, fixing it there with catgut.

The inconvenience of this traumatism, which cannot be very extensive, cannot be compared to the danger of persistent suppuration of the pleural cavities. The obstacle to the cure can come from the tuberculous nature of the pleural lesion. In those cases one must curette the cavity. But this curetting must not be the irregular, insufficient, uncertain, dangerous curetting, which consists in thrusting the curette through the fistula, and moving it in different directions. It must be done openly, so as to destroy the secondary diverticula which may exist.

DR. BOUILLY, of Paris, had operated thirteen times; twelve times on patients from twelve to thirty years old; the other case was a man over forty. Youth gives the greatest chance of success on account of the elasticity of the thoracic walls. The oldest suppurating cavity had been twelve years; the most recent one, one year old. He divides his cases into four groups: 1st, large suppurative cavities, the lung being thoroughly compressed and irremediably lost; 2d, large cavities, but the lung still good; 3d, medium cavities, in which the lung is compressed in a cup-like shape of four inches broad; 4th, fistulous tracts, more or less deep and oblique.

The pleura is sometimes an inch thick, and requires excision. In other cases the pleura may be soft and friable, which indicates a breaking down of the patient. In very large cavities, he thinks better not to interfere. The large cavities may be attempted if the subjects are less than twenty-two years old, and if the cavity does not extend too high or too far back. The fistulous tracts should be well scraped and touched with chloride of zinc. Out of thirteen operations he reports eight definite cures: one persistent fistula; one result incomplete, and three deaths; one by septicæmia on the third day; one during the operation; the last one from hectic after six months.

DR. BERGER, of Paris, had had two deaths and thinks the operation a serious one. One patient was tuberculous who had an operation for empyema performed four years previously, having had a fistula since, through which he would bleed very much, a regular hemoptysis. It was very difficult to explore the chest. He then made a resection, a very laborious one, but when the patient became conscious he suffered from severe dyspnœa, and died four hours later. The cause of the death was due to his having resected the last rib. These last ribs give attachment to the digitations of the diaphragm, and sustain the phrenic centre, and their suppression produces a loss of equilibrium in the respiratory play, which is still more favored by the bad condition of the lung. If there be a tendency or signs of tuberculosis or of amyloid degeneration of the viscera, one must not operate; but if the suppurating cavity is the only cause of hectic the suppression of the suppuration will restore the patient.

DR. KIRMISSON, of Paris, had only one case, which, however, he followed for four years. In 1884, a man, nineteen years of age, suffering from chronic left purulent pleurisy with a fistula below the nipple, consulted him. After having opened the eighth interspace he excised two or three inches from four ribs. The general condition of the patient became better, he went home, but returned later to have a second operation performed, this time eight ribs were excised. The patient was cured with a very small fistula.

DR. FAUVAL, of Havre, presented a patient on whom he excised respectively, 4, 5, 5, and 3 inches of the fifth, sixth, seventh, and eighth ribs; the cure was complete.

DR. OLLIER, of Lyons, said that in children he recommends very small excisions, whatever may be the size of the pleural abscess, relying upon the elasticity of the thoracic walls, for large excisions would produce deformities of the vertebral column. In adults, large excisions are necessary. The excisions must be done on the lateral parts of the thorax, the nearer you go toward the anterior portion of the rib the more you compromise its further osseous development, for it is always by its anterior part that the development proceeds. If the fistula be nearer the sternum, resect only on the side, the immediate results will be sufficient, the later results will be much better. He made these observations on lambs when he made his experiments on the sub-periosteal reproduction of bone. One must be very careful in young subjects to take away carefully the costal periosteum, or else we would have a rapid osseous regeneration which would interfere with the success of the operation; the scraping of the periosteum is not sufficient. This precaution is not necessary in elderly persons.

DR. LEVRAT, of Lyons, mentioned the history of a

case on which he performed costal excision three times. In his two last attempts he met with real bony plates very extensive, the ablation of which was very annoying. The destruction of the periosteum by dissection or with the thermo-cautery would prevent such formation.

Dr. Ollier said that these bony plates are found especially in old inflammations of the pleura, they are ossifications due to the presence of the periosteum on neighboring inflammatory tissues. In one case he had great difficulty, the pleura was lined with a calcareous layer, which prolonged itself in inaccessible culs-de-sac. He took a great part of it away, but was compelled to leave the rest, which kept up a small fistula not dangerous to health.

Dr. Duret, of Lille, communicated a case of excision in a child four years old. The suppuration, which was very extensive, had lasted eighteen months and had reduced the little patient. He excised from four to five inches of five ribs. The cure was complete, and the lung returned to its function. He concludes that in children this operation will sometimes give excellent results.

ON THE RETURN OF EXTIRPATED NEOPLASMS.

Dr. Cazin, of Berck-sur-Mer, gave the results of his practice from September, 1862, to 1886; he had extirpated 564 malignant tumors. The diagnosis of the tumors he had treated had not always been made before intervention, but the post-operative examinations have always settled the question. These tumors were myxomas, chondromas, sarcomas, epitheliomas, carcinomas. He would only take, for example, the scirrhus and encephaloid.

He had operated upon 102 *scirrhus* of the breast; 60 complicated by ganglionic extension, 42 without it. In the first 60 cases he obtained 7 definite cures, 48 returned, 3 died, and 2 results unknown. With the 42 others he had 8 absolutely cured, 28 returned, 2 died, and 5 results unknown.

He operated on 120 *encephaloids;* 80 with ganglionic involvement and 40 without. In the first 80 he had had 5 cures, 67 returns, 4 deaths, 4 results unknown. In the 40 others 8 definite cures, 26 returned, 1 death, 5 unknown.

The returns he had observed have commenced from three months to seven years after the operation. He attributes the proportion of his successes to his adhering strictly to these precepts; very extensive extirpation, without occupying himself with the immediate union of the wound, even when the lymphatic glands appear normal; he extirpates the lymphatic vessels between the tumor and the lymphatic glands.

Prof. Verneuil, of Paris, said that in the great majority of cases cancer is a constitutional disease; the beginning may be a local trouble, which once developed will infect for ever the system, and never is cured. There can only be occasional arrests in the development of the tumor. He had seen in a lady, a cancer return on a cicatrix of the breast thirty years after the primary operation, with histological characters exactly similar to the first tumor. In another case he saw a ganglionic return six years and a half after the extirpation of an epithelioma of the neck of the uterus. To explain this first fact, we might say that there is a new determination of the diathesis on the cicatrix, which is a place of less resistance; he preferred the idea of morbid latency, which explains also the glandular return of the trouble. It is certain, that where the return took place there must have been already some morbid elements there at the time of the operation. As to the microbic character of the cancer, it is not yet established. What do we do to prevent the return? We make our patients follow a treatment for six months. He thought, however, that these germs, in an embryonic state, so to say, can be destroyed or influenced by the medicines which are powerless on the declared cancer. He always prescribes after an operation a permanent arsenical and alkaline treatment. He orders $\frac{1}{25}$ grain of arsenic a day, and a teaspoonful of magnesia every night before going to bed. Under the influence of this treatment he had seen a lymphatic gland remain stationary for more than one year after he had amputated the breast; he absolutely condemned the iodide of potassium. One must also prescribe a vegetable diet; for he thought that since our peasants have taken more meat during their meals the number of cancers has also augmented.

Dr. Poncet, of Lyons, read the statistics of his operations: Out of seven primary epitheliomas of the scalp, all died after one or more operations; on the contrary, two epitheliomas, which had begun in an old sebaceous cyst, extirpated, gave him two good results. The skin epitheliomas on cicatrices of burns returned very rapidly. Eight epitheliomas of the tongue all died from a return of the trouble within two years; on the contrary, he had two lasting cures for epitheliomas of the floor of the mouth; in one case, the cure is due to a very extensive ablation, favored by the ligature of both external carotids and the excision of the inferior maxillary. He concludes, 1st, that a return of a neoplasm is almost certain in subjects presenting a direct cancerous heredity; 2d, when the glands are involved, the tendency to the return of the disease is much greater; 3d, the best prophylaxis is found in the rapid and broad extirpation; 4th, one must also not operate when we find very unfavorable conditions; great numbers only demand a palliative intervention.

Dr. J. Bœckel, of Strasbourg, said that out of 103 operations for cancer, he had had 89 cures, and 14 deaths. Out of the 89 cures, 12 only can be considered as permanent; 32 have been lost sight of after two to four years; the 45 others had a return. Among these returns, one came six years later (rectum), and three from eleven and a half to twelve years (lips, rectum, and tongue).

Dr. Pollosson, of Lyons, said that out of 7 cases of diffused myxomas of the extremities, which were apparently completely extirpated, all have returned within the year, and have required the amputation of the limb. In presence of these myxomas one must not hesitate to sacrifice the limb as early as possible.

Dr. Labbé, of Paris, said that it is sometimes a difficult matter to obtain from the patient the authorization to sacrifice a limb for an apparently local trouble; this had happened to him lately, a patient suffering from a diffuse myxoma of the arm, refused to let him disarticulate his shoulder; he returned a few days ago, but too late to be operated upon. But there are some benign tumors, which are very interesting to consider, the adenoid tumors of the head, which have a tendency to return. The classical operation for these tumors is simple enucleation; it is absolutely insufficient, and it is necessary to

extend beyond the capsule of the tumor. In addition, when these tumors are very large, the whole breast must be extirpated, and search for the rest of the gland must be made which has been pushed eccentrically and flattened, and which is difficult of recognition. We shall in that manner prevent the six or seven successive returns of this variety, of which we have examples. He is a firm believer in immediate autoplasties, especially of the face, when we extirpate large tumors. For limited epitheliomas of the face he had always been satisfied with the use of the caustic, which gives results superior to the use of the knife. He also believes, like Verneuil, that a post-operative treatment is necessary. He would add to the medicines employed and mentioned by Prof. Verneuil, the tincture of condurango, which has also been used by Nussbaum.

DR. G. RICHELOT, of Paris, remarked that total hysterectomies gave as many or more returns than partial hysterectomies. This is due to the fact that complete hysterectomy is only undertaken when the cancer is very extensive, and extends beyond the uterine limits. He presented 13 new cases of vaginal hysterectomy, 2 must be deducted, for extension to the broad ligament was recognized, and the operation was not completed. Out of the 11 others he has had 5 returns, and 6 cures, 55 per cent. But 11 cases are very few to establish a mortality, and 2 of his cases are only seven or eight months old. It is in the first six months that the return of the neoplasm is to be feared; it is rare to observe it after two years. All his patients were operated upon early; four times he had an intra-cervical cancer, and twice a little more extensive growth on the neck of the uterus. To diminish the chances of return, he resected a band of the vagina. This is especially useful in the cauliflower epithelioma of the neck of the uterus, which has a greater tendency to propagate itself to the vagina. The cases must also be well watched for six months, and the least return of the trouble must be destroyed. He has employed the secondary interference in two cases, and the cure maintains itself. There should be no operative interference when the broad ligaments are involved.

DR. CASTEX, of Paris, presented a case with autopsy, in which there was, on the patellar cartilage, the propagation of a sarcoma by the bloodvessels; there existed in the middle of this cartilage, which was normal, a sarcomatous colony in relation with the degenerated synovial membrane through vessels of new formation. The histological examination has shown the migration of these sarcomatous elements through vessels of new formation.

DR. SABATIER, of Lyons, recommends to attack malignant tumors by their periphery, and not to tear them, so that none of this pathological tissue may become grafted on the fresh bleeding surfaces. The union by first intention is a danger, for such little pieces, which may be left behind, will be the source of a new development, hence union by second intention is to be recommended.

DR. MOLLIÈRE said if the patient is young the return of the trouble is almost certain, and it becomes a question whether to operate or not. After fifty years one can hope that no return of the trouble will take place. After seventy years one is almost sure it will not reproduce itself.

DR. GALEZOWSKI, of Paris, said that the malignant tumor of the eye develops generally in the anterior segment of the eye, which he explained by the great nutritive activity at the sclero-corneal junction. In melano-sarcomatous tumors the epitheliomas do not appear to reproduce themselves through the bloodvessels or lymphatic vessels, for they remain localized where they first broke out. The malignant tumors of the eye he finds now much more common than twenty years ago. The mechanism of direct inoculation explains the propagation of the neoplasm, the epitheliomas, which, beginning in the globe of the eye, inoculate the palpebral border. In other cases, the propagation takes place by the lymphatics. In melanotic epithelioma the implantation takes place in the corneal border.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, March 26, 1888.

THE PRESIDENT, S. WEIR MITCHELL, M.D., IN THE CHAIR.

DR. S. WEIR MITCHELL read a paper on

LOCOMOTOR ATAXIA CONFINED TO THE ARMS: REVERSAL OF ORDINARY PROGRESS.

(See page 428.)

DRS. CHARLES K. MILLS and W. C. CAHALL reported

SIX CASES OF EPIDEMIC CEREBRO-SPINAL MENINGITIS.

(See page 429.)

DR. WILLIAM OSLER said that it was interesting to note that in this city cerebro-spinal meningitis had been endemic for so many years. Dr. Stillé states that every year since 1863–64, deaths from this affection have been reported. Many of the cases were probably not cerebro-spinal meningitis. Mistakes in diagnosis were very common in this affection. Three or four instances of this had come under his observation. One case of small-pox was diagnosticated as cerebro-spinal meningitis. Cases of what the French term the cerebro-spinal type of typhoid fever, were frequently diagnosticated as cerebro-spinal meningitis, and at the post-mortem the brain was deeply congested, while the intestines exhibited the characteristic enteric lesions. The fifth case reported by Drs. Mills and Cahall resembled typhoid fever with severe cerebro-spinal manifestations. In certain of these cases he did not think that it was possible to make a positive diagnosis, unless the base of the brain was involved.

DR. MILLS said that the fact that in the fifth case the patient became blind was a strong point in favor of cerebro-spinal meningitis.

DR. H. A. HARE spoke with reference to the use of salicylic acid and quinine in cerebro-spinal meningitis. He had always understood from his reading and teaching and had found it practically correct, that these drugs are contraindicated in inflammation of the meninges of the brain and of the brain itself on the ground that they produced congestion of these parts. Studies have shown that in animals killed with quinine intense inflammation of the meninges of the brain was the typical post-mortem lesion.

DR. WILLIAM W. WELCH had been much pleased in listening to what had been said. It was, he said, shortly after the war that he first saw in this city cases of cerebro-spinal meningitis, and they answered to the description

given that evening. Since then he had only occasionally met with a case. He was inclined to agree with Dr. Osler that not unfrequently a mistake in diagnosis was made in regard to this disease. He had seen more than one case of smallpox mistaken for cerebro-spinal meningitis. About a year before, a young Swedish girl, suffering from this disease, had been brought to the Municipal Hospital from a ship arriving at this port. Of course he did not see her early in the disease nor was he able to obtain any history, but when admitted there was cephalalgia, hyperæsthesia, and marked stiffness of the neck and along the spinal column. She was totally deaf and in the course of the disease a purulent discharge came from the ears. For a time she seemed to improve, but finally lapsed into coma, and finally died after being in the hospital thirty-six days. No post-mortem was made. There had been under treatment in the hospital two cases which came from the locality mentioned by Drs. Mills and Cahall. These cases were not sent to the hospital until they had been sick about two weeks. He learned, however, that in both cases the sickness came on suddenly with a chill followed by fever, nausea, headache, intolerance of light, delirium, and stiffness amounting to rigidity of the cervical muscles. On admission most of these symptoms continued. It was about seven weeks since the attack occurred; in one case there was apparent improvement, but the condition of the other was still critical. The convalescence from this disease is always protracted. Indeed, he had sometimes questioned whether in severe cases perfect recovery ever takes place.

NEWS ITEMS.

New Quarantine Stations.—Dr. John B. Hamilton, Supervising Surgeon-General, Marine-Hospital Service, recommends to Congress the erection and thorough equipment of seven quarantine stations in addition to the one already provided for at the mouth of the Mississippi River, as follows: Delaware Breakwater; Cape Charles, Va.; Sapelo Sound; Key West, Fla.; San Diego, Cal.; San Francisco, Cal.; and Port Townsend, Oregon. The estimated aggregate cost of construction and equipment of these quarantine stations, including the one at the mouth of the Mississippi River, is $489,500, and the estimated aggregate annual cost of maintaining them is $93,000. "Believing, as the committee does, that it is the duty of Congress so to regulate commerce as to prevent the introduction of contagion from foreign countries into the United States, the bill is reported, with the recommendation that it pass," is the concluding sentence in the Senate Committee's report.—*Sanitary News*, April 7, 1888.

An Appropriation for the College of Physicians and Surgeons at Baltimore.—The *Maryland Medical Journal* of March 31, 1888, states that a bill has passed the House of Delegates of Maryland appropriating $10,000 for the use of the College of Physicians and Surgeons, of that city, to be used in the erection of a building adjoining the City Hospital on Calvert Street. The bill provides that the College shall support one free bed for each County in the State.

An Epidemic of Typhoid Fever in a College.—The *Sanitary News* writes that St. Stephen's College, near Poughkeepsie, N. Y., has been closed on account of an outbreak of typhoid fever among the students. The trouble is attributed to the drinking water, which is obtained from a well at the bottom of the hill on which the college buildings are situated. It is claimed the drainage from them enters the well.

The Cremation of Hospital Garbage.—The offensive refuse from Cook County Hospital is now being burned in the Chicago garbage crematory.

Boards of Health in Ohio.—A new and very important law has just been passed in Ohio, whereby a board of health is established in each city or village containing five hundred or more inhabitants.

The Manufacture of Cognac.—In a recent report from Mr. Vice-Consul Warburton, some suggestive statements are made as to the condition of the brandy industry in the department of the Charente-Inferieure, from which, before the vine failure, a considerable portion of the brandy exported to this country (England) was derived, although much also came through Cognac, which is the headquarters of the trade. Mr. Warburton states that in 1875 the department produced 200,000,000 gallons of wine, a great part of the surplus over the local consumption being converted into brandy. In consequence, however, of the ravages of the phylloxera the produce has gradually fallen off, until in 1886 it was reduced to 13,000,000 gallons. As the local consumption of wine in the department is estimated at 12,000,000 gallons, it will be seen there must have been comparatively little left for brandy making. In fact, Mr. Warburton says that pure brandy has become very scarce and difficult to get in the department, most of what is sold being mixed with beet root or cheap German spirit, while the latter is very often sold as cognac without any mixture at all. Mr. Warburton significantly adds that the supply of "cognac" is very limited and must diminish every year, ss that if the trade in the reputed article continues to go on much the same as it did before the failure of the vines, it will be evident that fraud is on the increase.—*Pharmaceutical Journal.*

Cremation in Italy.—The *British Medical Journal* writes that cremation in Italy has not, for the last two years or so, made so much headway as at first. The example at Milan in 1876 soon found many imitators, especially in the northern and central provinces of Italy, and there are now something like thirty-two societies and committees for favoring cremation, though they have not all got crematories of their own yet. The number of persons burnt last yeai was only 165, as against 181 in 1886. The Pisa Society, however, has not yet sent in its statistics for last year, and crematoriums will be opened in the course of the present year at Turin, San Remo, Verona, Bologna, Pavia, and one or two other towns. Of the total number of 952 cremations that have occurred in 17 cities in Italy, since 1876, as many as 518 have taken place in Milan, and 155 in Rome. The new crematorium at Milan is situated at the extreme end of the Campo Santo, just outside the walls of the city. The temple, as it is called, is a building in the Doric style, constructed of stone, and having an open façade supported by columns, from behind which rises a tower which, as seen

from the outside, looks as if it formed part of the temple, although in reality it stands quite by itself, and is the chimney. The inside of the building is divided into several rooms, in the first of which the religious rites are performed; its walls are lined with funeral urns containing the ashes of many of those who have been cremated at Milan. There is a separate room in which the bodies are placed pending cremation, and a third in which the relatives and friends spend the two hours occupied by the cremation itself. There are two furnaces—one being for general use, and the other for the bodies of persons who have died of contagious diseases and are not natives of Milan. The body is not visible to the onlookers when being put into the furnaces, nor are the ashes afterward.

Inconsistent Anti-vivisectionists.—Professor W. Mattieu Williams convicts the enemies of physiological experiment of inconsistency by showing that all male animals that come fully grown to market, as they must know, are subjected to one of the most painful mutilations that can be performed, merely to improve the flavor of their flesh. "A prominent member of the screeching sisterhood," he says, "has been seen lounging in her carriage drawn by a pair of horses that have been thus tortured for her luxurious convenience. To this she is supremely indifferent, but raves most virtuously against those who puncture the skin of a dog or rabbit in order to save thousands of human beings from cruel disease."—*Popular Science Monthly.*

The Removal of Dr. Thomas Keith to London.—Dr. Thomas Keith, the distinguished ovariotomist of Edinburgh, has made arrangements for removing to London in a short time. The Edinburgh School and the Royal Infirmary will sustain a great loss in Dr. Keith's change of location.

Recent Deaths among Medical Men in Paris.—Dr. Blot, a well-known obstetrician; Dr. Constantin James, a writer on the mineral waters of France; Dr. Martineau, a well-known gynecologist; and Dr. Brochin, the principal editor of the *Gazette des Hôpitaux*, are among the number of medical men recently deceased in Paris.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE FOUR WEEKS ENDING APRIL 7, 1888.

ARMSTRONG, S. T., *Passed Assistant Surgeon.*—Granted leave of absence for fourteen days, March 21, 1888.

BRATTON, W. D., *Passed Assistant Surgeon.*—Promoted, and appointed Passed Assistant Surgeon from April 6, 1888, April 2, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM APRIL 3 TO APRIL 16, 1888.

BAXTER, JEDEDIAH H., *Colonel and Chief Medical Purveyor.*—Detailed as a member of an Army Retiring Board, appointed to meet at Washington, D. C., on Wednesday, April 4, 1888.—*S. O 75, A. G. O.*, April 2, 1888.

GREENLEAF, CHARLES R., *Major and Surgeon.*—Detailed as a member of an Army Retiring Board, appointed to meet at Washington, D. C., April 4, 1888.—*S. O. 75, A. G. O.*, April 2, 1888.

ALDEN, CHARLES H., *Major and Surgeon.*—Will repair to Washington, D. C., on public business, and, on the completion thereof, will return to his station (West Point, N. Y.).—*S. O. 75, A. G. O.*, April 2, 1888.

BIART, VICTOR, *Captain and Assistant Surgeon.*—Having been found incapacitated for active service, by an Army Retiring Board, sick leave of absence is still further extended until further orders, on account of disability.—*S. O. 77, A. G. O.*, April 4, 1888.

GARDNER, EDWIN F., *Captain and Assistant Surgeon.*—Leave of absence extended fourteen days.—*S. O. 77, A. G. O.*, April 4, 1888.

BUSHNELL, GEORGE E., *Captain and Assistant Surgeon.*—Ordered from Fort Preble, Mon., to Camp Pilot Butte, Wyoming.—*S. O. 79, A. G. O.*, April 6, 1888.

STEPHENSON, WILLIAM, *First Lieutenant and Assistant Surgeon.*—Ordered from Camp Pilot Butte, Wyoming, to Fort Verde, Arizona.—*S. O. 79, A. G. O.*, April 6, 1888.

MIARUS, E. A., *First Lieutenant and Assistant Surgeon.*—Ordered from Fort Verde, Arizona, to Fort Snelling, Minnesota.—*S. O. 79, A. G. O.*, April 6, 1888.

KNEEDLER, WILLIAM L., *First Lieutenant and Assistant Surgeon.*—Ordered from Fort Snelling, Minnesota, to West Point, N. Y.—*S. O. 79, A. G. O.*, April 6, 1888.

BORDEN, W. C., *First Lieutenant and Assistant Surgeon.*—Ordered from Fort Douglas, Utah Territory, to San Antonio, Texas.—*S. O. 79, A. G. O.*, April 6, 1888.

EDIE, G. L., *First Lieutenant and Assistant Surgeon.*—Ordered from San Antonio, Texas, to Fort Douglas, Utah Territory.—*S. O. 79, A. G. O.*, April 6, 1888.

EWEN, CLARENCE, *Captain and Assistant Surgeon.*—Granted leave of absence for six months, with permission to go beyond sea.—*S. O. 85, A. G. O.*, April 13, 1888.

APPOINTMENT.

RAFFERTY, OGDEN, to be *Assistant Surgeon*, with rank of First Lieutenant, March 26, 1888.

PROMOTION.

GIRARD, JOSEPH B., *Assistant Surgeon*—To be Surgeon, with the rank of Major, March 22, 1888.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING APRIL 14, 1888.

PERCY, HENRY T., *Passed Assistant Surgeon.*—Ordered from Naval Academy to Hospital, Washington, D. C.

CRAWFORD, M. H., *Passed Assistant Surgeon.*—Ordered from Hospital, Washington, D. C., and wait orders.

FLINT, J. M., *Surgeon.*—Ordered from Fish Commission duty to special duty at Smithsonian Institution.

PERSONS, R. C., *Surgeon.*—Ordered to duty in charge of Army and Navy Hospital, Hot Springs, Ark.

STONE, E. P., *Assistant Surgeon.*—Ordered from further treatment and to duty, Hospital, N. Y.

KINDLEBERGER, DAVID, *Medical Director.*—Ordered from Hospital, Washington, D. C., and wait orders.

HŒHLING, A. A., *Medical Inspector.*—Ordered to Naval Hospital, Washington, D. C.

HAYMON, G. E. H., *Passed Assistant Surgeon.*—Ordered to duty at the Naval Academy, Annapolis, Md.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked. Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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ORIGINAL LECTURES.

INVESTIGATIONS RELATING TO THE ETIOLOGY AND PROPHYLAXIS OF YELLOW FEVER.

An Address Delivered before the College of Physicians of Philadelphia, April 21, 1888.

BY GEORGE M. STERNBERG, M.D.,
MAJOR AND SURGEON U. S. ARMY.

GENTLEMEN: You are aware that I have been engaged during the past year in an investigation of the methods of inoculation practised in Brazil and in Mexico, by which it is claimed that protection against yellow fever is afforded. The subject is one of such great interest to the medical profession everywhere, and of such importance with reference to the sanitary interests of that portion of the United States subject to invasion by the disease in question, that Congress provided for an investigation of the methods of inoculation practised in Brazil and in Mexico, in the Act providing for the civil expenses of the Government for the year ending June 30, 1888.

Having been selected by the President to make the investigation referred to, in compliance with my instructions I first proceeded to Brazil for the purpose of investigating the methods of Dr. Domingos Freire, of Rio de Janeiro, and after my return from that country went to Mexico to make a similar research with reference to the value of the method of inoculation practised by Dr. Carmona y Valle. My detailed report was submitted to the President about a month ago, and by his permission I am now authorized to make public the conclusions reached. As I am about to go to Havana for the purpose of continuing my researches with reference to the etiology and prophylaxis of yellow fever, I am glad to avail myself of the kind invitation of the College of Physicians of Philadelphia, and to present to you, and to the profession generally, the conclusions which I have reached up to the present date.

These conclusions are given as follows in my report, above referred to:

"Facts relating to the endemic and epidemic prevalence of yellow fever, considered in connection with the present state of knowledge concerning the etiology of other infectious diseases justify the belief that yellow fever is due to a living microörganism, capable of development, under favorable local and meteorological conditions, external to the human body, and of establishing new centres of infection when transported to distant localities.

"Inasmuch as a single attack of yellow fever, however mild, protects, as a rule, from future attacks there is reason to hope that similar protection would result if a method could be discovered of inducing a mild attack of the disease by inoculation or otherwise.

"The hypothetical yellow fever germ, multiplying external to the human body in unsanitary places in tropical regions where the disease is endemic, or during the summer months in the area of its occasional epidemic prevalence, establishes infected localities, and susceptible persons contract yellow fever by exposure in these infected areas. We infer therefore, *a priori*, that the yellow fever germ invades the system by the respiratory tract, by the alimentary canal, or from the general surface of the body; and it should be found in the blood and tissues, or in the alimentary canal, or upon the surface.

"Another possibility presents itself, viz., that the germ multiplying in insanitary localities external to the body produces a volatile poison which contaminates the air, and that an attack is induced by the toxic effects of this potent chemical poison. The more or less prolonged period of incubation—two to five days—in numerous cases in which the attack has been developed after removal from the infected locality seems opposed to this latter hypothesis.

"In the light of what is known of the etiology of other infectious diseases, the hypothesis that the germ really finds entrance to the body of the person attacked and multiplies within it, is that which presents itself as most probable, and it hardly seems worth while to consider any other unless this is proved by a complete investigation not to be true. In the latter event we would have to consider the possibility of absorption through the respiratory tract of a volatile toxic agent, or through the skin of a poisonous ptomaine formed upon the surface of the body by a specific microörganism which does not itself penetrate to the interior.

"Naturally the attention of investigators has first been given to a search for the 'germ' in the blood of those attacked, and in the blood and tissues of the victims of the malady.

"*The researches made up to the present time have failed to demonstrate the constant presence of any microörganism in the blood and tissues of those attacked.*

"*My own researches, recorded in the foregoing report, show that no such microörganism as Dr. Domingos Freire, of Brazil, has described in his published works, or as he presented to me in his yellow fever germ at the time of my visit to Brazil, is found, as he asserts, in the blood and tissues of typical cases of yellow fever.*

"*There is no satisfactory evidence that the method of inoculation practised by Dr. Domingos Freire has any prophylactic value.*

"*The claims of Dr. Carmona y Valle, of Mexico, to have discovered the specific cause of yellow fever have, likewise, no scientific basis; and he has failed to demonstrate the protective value of his proposed method of prophylaxis.*

"It is highly important, in the interests of science and of public health, that further investigations be made by more exact methods, which have been perfected since Drs. Freire and Carmona made their researches, and with which they were evidently not familiar.

The failure thus far to find a specific microörganism

in the blood or tissues, makes it desirable that a thorough research should be made with reference to the microörganisms present in the alimentary canal, for it is possible that in yellow fever, as in cholera, the disease is induced by a microörganism which multiplies in this situation. Additional researches are also required before we can say definitely that there is no germ demonstrable in the blood and tissues. Having exhausted our researches by the method of direct examination, and by cultures from blood drawn during life, it is highly desirable that various culture media should be inoculated with material taken, with proper precautions, from the various organs, and at the earliest possible moment after death.[1]

I cannot attempt to give you in detail, at the present time, the evidence upon which the conclusions above stated are based, but it is recorded, *in extenso*, in my Report to the President, and will no doubt be published in due time. I shall, however, take advantage of this occasion to call your attention to some of the principal facts upon which I base the unfavorable opinion expressed with reference to the claims of Dr. Domingos Freire, of Brazil, and of Dr. Carmona y Valle, of Mexico. Both of these gentlemen, as you are aware, have laid claim to priority in the discovery of the specific germ of yellow fever, and both have practised inoculations with material supposed to contain their "microbe," having in view the production of a mild attack of the disease, and subsequent immunity as a result of this attack.

Dr. Freire has, however, made the greater number of inoculations and owing to his numerous publications and very positive assertions, his claims have received the most attention. My conclusion, that these claims are without scientific foundation, may seem to you almost incredible, in view of the extended researches which Dr. Freire has made in a locality where yellow fever is endemic, and of the very favorable statistics which he has published in support of the value of his method of inoculation. But I need scarcely remind you that the astonishing development of our knowledge relating to pathogenic microörganisms, which has occurred during the past decade, has been accompanied by numerous announcements of pseudo-discoveries in this field of research, and that much confusion has resulted from the premature publication of experimental researches made by enthusiastic investigators not familiar with the exactions of modern science, or with the exact methods by which alone security is offered against such pseudo-discoveries.

Dr. Freire insists in all his published works that his *cryptococcus xanthogenicus* is present in great numbers in the blood and tissues of yellow fever patients. In his principal work, *Doctrine Microbienne de la fièvre jaune*, published in 1885, he makes the following statement:

"The microbe xanthogenicus is a cosmopolitan; it does not select its domicile in any organ and has no preference for any organic liquid. We have encountered it with the same characters, the same opulence of proliferation, in the brain, in the muscles, in the liver, in the spleen, in the kidneys, in the lungs, in the blood, in the urine, in the bile, in the vomit, and even in the cephalorachidian fluid. However, it is necessary to establish a well-drawn distinction as to the blood; the blood of the general circulation shows itself much less charged with the microbes than the blood of the capillaries. Thus, if I could admit any preference on the part of the microbe xanthogenicus I would say that it pleases itself better in the blood of the capillaries, in the blood which bathes immediately the anatomical elements.

. . . . . .

"The occasion seems to us a favorable one in order to call attention to some indispensable precautions when the microbes of yellow fever are to be sought in organic solids and liquids. While it is extremely easy to perceive the presence of the microbes of yellow fever in the urine and the bile, for example, by placing a drop of these liquids upon a glass slide, covering it with a thin glass cover, and examining it with a power of 450 to 740 or 780 diameters, this proceeding cannot be employed when the blood is to be examined. If we proceed in this manner the globules will hide nearly all of the microbes, and the observer will wrongfully conclude that they are very rare in this organic liquid. Not only does the form of the microbe offer a certain resemblance to that of the red corpuscles, but these latter in adhering together envelop 'the microbian cells, and, on the other hand, cast upon the cells a jet of light which makes them disappear from the field of the microscope.'

"But if we dilute a little drop of blood in a pure solution of sulphate of soda and place it under the objective, the microbes become visible and will appear in considerable quantity,

"It is likewise necessary to make a preparation previously for the examination of the cerebral mass and of the muscles. They should be triturated in a sterilized mortar and mixed afterward with distilled water entirely deprived of organisms, filtered through fine linen which has been passed rapidly through the flame of an alcohol lamp, and afterward a drop of the filtered liquid should be placed upon a glass slide. If we withdraw a little piece of brain or of muscular fibre, even triturated, we will not perceive anything abnormal under the microscope unless it be the anatomical elements more or less deformed by trituration.

"It is not the same for the liver. It suffices to withdraw a bit of this organ and to crush it between two glass slides; upon observing it under the microscope we perceive at once a multitude of microbes. This is because in the muscles the microbes are lodged between the fibrillæ and in the substance which surrounds them; and in the brain they are found in the interior of the nerve cells which must first be destroyed by trituration in order that their parasitic hosts may become visible."

Having made extended researches in Havana in 1879, and during the past year in Brazil and in Mexico, I am able to assert most positively that no such microörganism as Dr. Freire has described is to be found in the blood and tissues of yellow fever patients. I have examined blood from numerous cases, drawn from the finger during life, both in the fresh condition, in preparations stained by various aniline colors, and by culture methods, and I have studied with great care a large number of thin sections of the liver and kidney, stained by the most approved methods, from a considerable number of typical cases of yellow fever, without having encountered the *cryptococcus xanthogenicus*.

As Dr. Freire asserts that his microbe is especially abundant in the capillary vessels, it should be easily demonstrated in thin sections of the various organs made *secundem artem*.

As a matter of fact, my researches show that, as a rule, no microörganism demonstrable by known methods of

[1] The writer went to Brazil and to Mexico fully prepared to make these experiments, but, unfortunately, was unable to secure any autopsies in either place, and the limit as to the time fixed by his orders made it necessary to return to the United States without having made these important researches.

staining, is to be found in such sections. But, here I must state that in certain cases microörganisms have been found. The one to which the most interest attaches is that described by Babes. This was discovered in 1884, in material sent to Paris from the laboratory of Dr. Lacerda, in Rio de Janeiro. At the time of my visit to Brazil, my friend, Dr. Aranjo Goes, gave me material from nine cases,[1] which had been preserved in Dr. Lacerda's laboratory since the epidemic of 1884, and after my return to Baltimore I examined sections stained by Gram's method, and with Lœffler's alkaline solution of methyline blue from all of these cases. I quote from my report as follows:

"In two of these cases I find in the capillaries of the liver and of the kidneys an organism which has been described by Babes and by Lacerda, who found it in material collected at the same time, and probably from the very same cases as those in which I now find it. This organism is a short bacillus, which occurs in chains, as seen in Fig. 2, Plate IV.

"In certain places, especially in the kidneys, it is found in the capillaries in great numbers, massed together; in other places it is distributed more sparsely, as seen in the figure." Careful examination of specimens stained with Lœffler's solution shows that the separate elements in these little chains vary considerably as to their length, and that the ends are more deeply stained than the centre. This appearance was no doubt observed by Babes, who first described the organism in question, but he has interpreted it differently. He says:

"The filaments appear united and homogeneous with an amplification of 600 diameters, but with a high power ($\frac{1}{12}$th hom. im., or No. 12 of Verick, which corresponds with the $\frac{1}{18}$th of Zeiss) one can assure himself that these filaments are composed of elliptical grains, almost cylindrical, arranged in pairs, forming little groups in which they are united by an intermediary pale substance. The filaments are thus composed of diplococci, or, if one wishes, of very short rods with terminal spores." (Op. cit., p. 522.)

Dr. Lacerda has described the organism referred to as in filaments which branch dichotomously, and believes this branching to be a constant and distinctive characteristic of the parasite which he accepts as the veritable yellow fever microbe. He is without doubt mistaken. The apparent branching of the filaments which he has described and drawn, and which he showed me in some of his preparations at the time of my visit to Rio, is due simply to the accidental juxtaposition of the torula-like chains. He is also mistaken in supposing that this organism is only to be satisfactorily demonstrated by Gram's method of staining. My friend, Dr. Goes, shared this belief at the time of my visit to Rio, but I demonstrated to him the facility with which the organism may be stained with a solution of methyline blue, upon sections which he made for me from material in Dr. Lacerda's laboratory. Since my return to Baltimore I have made numerous sections from the same material (two cases out of the nine) and find no difficulty in staining the organism present in the tissues, with methyline blue or with fuchsin. Dr. Goes also supposed that his failure to find this parasite in all of the tissues which he had preserved since the epidemic of 1884 was due to the fact that the tissues had been kept too long. He thought that it was most easily stained in recent tissues, and anticipated that when he had again an opportunity to make autopsies he would encounter this microorganism in the tissues. I shall await with interest his report of his recent researches.

As already stated, I have not been able to find this microbe of Babes in the tissues of six undoubted cases of yellow fever sent to me from Havana, and examined most carefully within six months of the date of the autopsies. Babes, himself, has renounced the idea that this microörganism bears an etiological relation to the disease under consideration. In the second edition of *Les Bacteries* he says:

"Since these researches we have had the opportunity to examine several series of sections from yellow fever: First, the liver and kidney of two individuals dead from this malady, collected by Dr. Alvarez, were examined in the Laboratory of Pathological Anatomy of the Faculty of Paris, without any bacteria having been found; second, material from three cases of yellow fever which Koch was kind enough to confide to one of us. In these three last cases, notwithstanding the most scrupulous research, and notwithstanding the advice of Koch, it was impossible to find the little chains in the brain, the kidneys, the liver, and the spleen. We must suppose, then, that in yellow fever, as in other infectious maladies, microbes are only found in the parenchymatous organs in certain cases, and not in all. The question whether these microörganisms really constitute the cause of the malady, or simply a complication, is consequently not resolved.

"We would remark that in view of the negative results attending Babes's more recent researches, and our own extended study of the tissues from six typical cases occurring in Havana, there is no good reason for supposing that the above-described microörganism bears an etiological relation to yellow fever. On the contrary, it seems probable that its presence in material from a limited number of cases occurring in Rio, is either entirely accidental, or is due to a secondary complication, perhaps to some form of septicæmia."

From what has been said, and from Dr. Freire's own account of his method of triturating fresh tissues to demonstrate his cryptococcus, the inference seems unavoidable that in his researches made by this method he has mistaken broken-up blood corpuscles and the granular *débris* of the tissue elements for microörganisms.

In his culture experiments he has, owing to a defective technique, encountered micrococci of various kinds, and one of these, which he brought back with him from Paris in an agar-agar culture, he presented to me as his yellow fever germ.

I brought a pure culture of this micrococcus with me to Baltimore, and have cultivated it during the past winter in various media. It does not correspond in its morphology, or mode of development, with the *cryptococcus xanthogenicus*, as described by Dr. Freire in his various published works, and, as stated, is not found in the blood or tissues of yellow fever patients.

In his principal work, published in 1885, Dr. Freire gives the following account of the morphology of his cryptococcus:

[1] In December last, having received a request from Dr. Frank Billings for some yellow fever material, I sent him a fragment of liver and one of kidney from one of these cases. It so happened that it was one in which the Babes organism was present, and Dr. Billings has since published an account of his examination of this material in a paper entitled, "Southern Cattle Plague and Yellow Fever."

"When we follow with care and attention the march of the development which characterizes the germs which produce yellow fever, we acquire the certainty that, commencing to present themselves under the form of little points almost imperceptible, they afterward gradually increase in diameter, until they attain considerable dimensions; so that these little beings, which, at the outset, had the aspect of very little grains of sand, not measuring more than 0.001 millimetre to 0.002 millimetre in diameter, arrive, little by little, to such a development that they reach the dimensions of 0.005, 0.007, 0.008 millimetre, and sometimes even more in certain conditions. When they have attained the adult age these cells are broken at divers points, and discharge their contents, composed of spores already formed, mixed with a viscous substance of a yellow color, composed of a pigment and protoplasmic substance, and of the liquids elaborated by the cells."

Even so recently as last year, in an address delivered before the Dosimetrique Society of Paris, Dr. Freire repeats this account of the mode of development of his cryptococcus; he says:

"Each adult cell is ruptured in one or several points, and allows to escape its contents, composed of germs which are to perpetuate the species, and two pigments, one yellow, destined to infiltrate all the tissues, and to produce the icterus color which has given name to the malady; the other, black, insoluble, and destined to be carried along by the circulatory current, producing either capillary obstructions, or blood stasis in the parenchyma of the organs."

Now this mode of multiplication is not known among the bacteria, and does not occur in the micrococcus which Dr. Freire placed in my hands as his yellow fever microbe, which multiplies by binary division, and does not differ in its morphology from a variety of microorganisms of the same class, which are extremely common in all parts of the world.

According to Dr. Freire's statement, the agar culture brought by him from Paris came originally from the blood of a patient with yellow fever at the point of death.

Now, as heretofore stated, I have demonstrated by the microscopic examination of numerous specimens, that, when proper precautions are taken, no microörganisms are found in blood drawn from the finger of yellow fever patients, and that no development occurs in culture media inoculated with such blood. I infer, therefore, that the micrococci, etc., found by Dr. Freire in his cultures, are due to the accidental introduction of microorganisms from without, and especially from the surface of the finger during the collection of the blood. I may remark here that Dr. Freire's cultures in liquid media, which were made before he went to Paris, and which were placed in my hands for examination, were all impure, and contained several different microörganisms. I suppose that the micrococcus brought back from Paris was isolated while he was there from one of these impure liquid cultures, for I found no evidence that solid culture media had been used in his laboratory in Rio prior to the date of his visit to Paris.

Nor did he use, to any extent at least, the well-known methods of staining bacteria which are recognized by bacteriologists as so essential in the study of these minute microörganisms. This is shown by the following quotation from his address, delivered in Paris, to which reference has already been made, he says:

"We know that in order to color a microbe it is necessary first to kill it and then to wash the little microscopic cadaver, by means of reagents possessing the power of dissolving all matters foreign to its skeleton. At the outset I applied myself to the study of the yellow fever microbe in a fresh state. I fed it with the best food—*les meilleurs engrais*—for the purpose of surprising the different phases of its evolution from its birth to its death."

"Nevertheless, in fault of other accusations, some authors have reproached me with not having colored my microbe. Alas! what a miserable objection. Is it necessary in order to affirm the existence of a microbe which swarms by millions in the urine, in the bile, in the blood, in the tissues, etc., is it necessary to mass them, to disguise them under a costume of carnival, in order to please certain microscopists? M. Pasteur has never colored his microbes, and nevertheless every one admits the existence of the bacillus of charbon, of the corpuscles of pébrine, of the micrococcus of fowl-cholera, etc.

"Do not think, gentlemen, that I fear the application of coloring processes to the search for the microbe of yellow fever. Far from it. In order to show you that the criticism which I have just made is not due to prejudice, I will say to you that such processes have recently been employed upon the yellow fever microbe with complete success."

A character upon which Dr. Freire insists, even in his address delivered in Paris in April, 1887, is the formation of two kinds of pigment, one yellow and one black. From the first he has affirmed that the black color of the characteristic "black vomit" is not due to the presence of blood changed by the acid secretions of the stomach, as has been generally believed by those physicians who have studied the disease, but that this color is due to a pigment produced by his cryptococcus. Now, I have had the coccus which he gave as his yellow fever germ under cultivation in various media, during a period of several months, and no black pigment has been produced. On the contrary, the colonies in Esmarch tubes, and stick cultures in gelatine, or in agar all have a milk-white color. In morphology this micrococcus does not differ from some well-known and widely distributed species. It liquefies gelatine quite slowly, grows readily at a temperature of 18.20° C. (64.4°–68° F.), and, as stated, forms no pigment.

The supposition that the microörganisms present in Dr. Freire's blood cultures, and in those of various other observers who have discovered yellow fever "germs" came from the surface of the body and not from the blood is sustained by recent experimental researches upon the sterilization of the hands, made by Kümmell[1] and by Fürbringer.[2]

These experiments show that it is not an easy matter to destroy all microörganisms upon the surface of the body by means of a disinfecting solution, and that a simple washing with bichloride solution of $\frac{1}{1000}$th does not usually insure sterilization of the hands. Fürbringer, after repeated experiments, recommends the following procedure: 1. Remove all visible dirt from the nails. 2. Scrub the hands with soap and water by means of a brush. 3. Immerse them for one minute in strong alcohol—at least eighty per cent. 4. While still wet im-

[1] Wie soll der Arzt seine Hände Desinficiren? Deutsche med. Wochenschr., 1886, No. 32, p. 555.

[2] Untersuchungen und Vorschriften über Disinfection der Hände des Arztes, etc. Wiesbaden, 1888.

merse them for one minute in a two per cent. solution of mercuric chloride.

Less thorough treatment did not in Fürbringer's experiments absolutely insure sterilization. In the case of patients in hospital, the difficulty is often increased by the fact that their hands are horny and begrimed with dirt which can only be removed by long scrubbing.

With reference to Dr. Freire's experiments upon animals, I can only say that those performed in my presence failed entirely to demonstrate that the micrococcus brought from Paris had any specific pathogenic power, and that I find no satisfactory evidence in the record of similar experiments contained in his various publications that it has ever transmitted yellow fever to rabbits or to guinea-pigs, as claimed.

I shall quote here a single experiment in which a fatal result occurred, and in which, as usual, Dr. Freire ascribed death to yellow fever resulting from the injection, notwithstanding the fact that the material injected (blood) had been subjected to a boiling temperature for some minutes. My own numerous experiments show that all known micrococci are quickly destroyed by a temperature much below the boiling point of water.[1]

Dr. Freire's account of this remarkable experiment is as follows:

"We must note that the microbe of yellow fever offers a remarkable resistance to heat. The following experiment furnishes a demonstration of this:

"On the 17th of April, 1883, we subjected to ebullition for several minutes, a gramme of blood containing the microbes. We injected it afterward into a guinea-pig, which had a temperature before the experiment of 38.5° C. (101.3° F.) in the axillary region. The temperature followed this march the following days:

April 18th	39° C. (102.2° F.)
" 19th	39°
" 20th	39.1°
" 21st	39°
" 22d	38.7°
" 23d	37.4° C. (99.3° F.)

"The animal died during the night of the 23d. Its autopsy showed the characteristic lesions.

"It is necessary to push the temperature beyond 200° C. in order to destroy the toxic energy of the microbe. As we have seen, its virulence resists simple ebullition. The microscope has shown that notwithstanding the boiling the microörganisms retained their ordinary form and continued to execute all of their movements, a proof of their complete vitality. (Op. cit., p. 217.)

"I may remark here that the micrococcus presented to me by Dr. Freire as his yellow fever germ is killed by exposure for ten minutes to a temperature of 60° C., and that it has no proper movements."

Dr. Freire's protective inoculations.—Having demonstrated that Dr. Freire's claim to have discovered the specific cause of yellow fever is without scientific foundation, it may be thought that no further demonstration is required in order to show that his preventive inoculations are without value; for these inoculations are said to have been made with cultures containing the attenuated microbe of yellow fever. These inoculations have, however, been made upon so large a scale, and the statistical results, as presented by Dr. Freire, appear so favorable to his method that it becomes necessary to analyze these statistics; and if, as he claims, they establish the fact that the mortality from yellow fever is very much less among those who have been inoculated by him than among non-inoculated persons exposed in the same way, we shall be obliged to concede the value of his method, although the rationale of the protective influence may not be apparent. In my detailed report I have reviewed at length Dr. Freire's statistics in the light of the facts developed by my personal researches in the city of Rio de Janeiro where the inoculations were made. I cannot attempt to bring the evidence before you at the present time, and I have already stated to you my conclusion with reference to the matter. In support of this conclusion I shall, however, quote a few extracts from my report.

In 1884, Dr. Freire inoculated 418 persons whose names, ages, place of residence, and length of residence in Brazil are given in an appendix to his principal work, published in 1885. In regard to the evidence afforded by these inoculations, I have written as follows:

"We remark, first, that in selecting foreigners and preferably those who had recently arrived in Brazil for his first experimental test as to the efficacy of his protective inoculations, Dr. Freire has given evidence of his confidence in the method of prophylaxis proposed and of an honest desire to demonstrate its value, and nothing could be more fair than his full publication of the names and of the essential facts with reference to these persons.

I must object, however, to his including in his statistics the names of thirty-seven persons residing in Vassouras, a village, which is some fifty miles distant from Rio de Janeiro. Even if these persons had occasion to visit Rio during the epidemic season, as is stated by Dr. Freire, it is probable that they would remain as short a time as possible, and there is no evidence that they were fairly exposed to the epidemic influence. Moreover, if any of these persons had contracted yellow fever as a result of a visit to Rio their names would not appear in the mortality list of this city, but in those of Vassouras, which are not given. The latter objection applies also to fourteen persons among the vaccinated whose place of residence is Nictheroy, a town upon the bay of Rio de Janeiro, which is the capital of the province of the same name; two persons vaccinated at Tijuca, and one on board the bark "Flive," two at Pavina, and three at Serraria must also be excluded. This reduces the number of vaccinated persons within the city limits to 355; and, of this number a certain proportion no doubt left the city soon after being vaccinated, and before any exposure, worthy of consideration in a test of this kind, had occurred."

Dr. Freire admits that "during the epidemic season a great number of the vaccinated were attacked by the malady," but claims that these attacks were of a mild character; yet he gives us the names of seven vaccinated persons who died from the disease. This list has been added to by some of Dr. Freire's confrères, as will be seen by the following translation of a letter published in one of the newspapers of Rio, and bearing date May 5, 1887. This letter is signed by Dr. Aranjo Goes, at present a member of the Central Board of Health, and a gentleman whose statements are worthy of the fullest confidence:

"My letter to the Imperial Academy of Medicine having been published, it now behooves me to publish

[1] The Thermal Death Point of Pathogenic Microörganisms. Amer. Journ. of the Med. Sci., July, 1887, pp. 146–160.

the statistics relating to the vaccinations on Morro da Viuva.

One fact seems to me to be definitely demonstrated, that is the *worthlessness of Dr. Freire's vaccination*, as is well known to the medical profession of this city.

A year ago I wrote the following:

"The want of skill which he displayed in his first experiments, the false conclusions which he has drawn therefrom, and the thoughtless precipitation with which he has hastened to make known incomplete results without accompanying them with a single qualifying remark vitiate all the methods to which he may hereafter resort to corroborate his statements." (*Journal do Commercio*, April 20, 1883.)

"The mortality among the persons vaccinated on Morro da Viuva furnishes one more proof that I was right in saying this, as I now proceed to demonstrate.

"There were vaccinated in this district sixty persons.

"Sixteen removed shortly after the commencement of the epidemic, and forty-four remained exposed to its influence. Of these twenty-two had yellow fever, nine of whom died.

"The following is a list of the vaccinated persons who had the fever, the names of those who died being marked with an asterisk:

"*Antonio de Oliveira.
"Antonio Bento da Silva.
"Albino Francisco Maia.
"Jose da Silva.
"*Joaquin Pereira da Souza.
"Joaquin Gomes de Azevedo.
"Joaquin Ferreira Tolho.
"Jose Seabra dos Santos.
"Jose de Sonza Ferreira.
"Jose Gomes de Azevedo Junior.
"Jose Farinha.
"Manoel Joaquin Percira Lopes.
"Manoel Gomes de Azevedo.
"*Manoel Antonio.
"Seraphim Goncalves Raymundo.
"*Manoel Simoes.
"Thome Simoes.
"*Manoel da Silva Alves.
"*Antonia Percira Neves.
"*Joaquim Martins Pinheiro.
"*Joaquim Antonio dos Santos Cardoso.

"Consequently, of the 44 vaccinated persons who remained in the locality 22, that is 50 per cent. had the yellow fever!

"Of the 22 patients, 9 died, that is 40.9 per cent.!

"In the Jurujuba Hospital, which receives scores of patients already dying or in the third stage of the disease, the mortality is only 21 per cent.

After reviewing all of the evidence obtainable relating to the inoculations practised in 1883 and 1884, I say:

"The evidence above recorded seems to the writer to be convincing as to the complete failure of Dr. Freire's proposed method of prophylaxis as practised in 1883 and in 1884. We cannot, however, leave the question here, inasmuch as a modification of the method was adopted in 1884, and a large number of persons have been since inoculated by this modified method. Dr. Freire says in his report under consideration: 'I have employed in nearly all of the vaccinations the endermic method, and it is only recently that I have injected into twenty persons the same cultures by the hypodermatic method. . . . I shall hereafter give the preference to the last mentioned method, because one is more sure that the liquid employed goes to exercise its preservative influence.'

In 1885, Dr. Freire resumed his inoculations on a larger scale, but instead of selecting unacclimated strangers, those inoculated were for the most part natives of Brazil or Portugese who had lived for a number of years in Rio and who had passed through one or more epidemics. A considerable number of negroes were also inoculated and included in the statistical tables. With reference to Dr. Freire's statistics for the year 1885 I quote from my report as follows:

"Dr. Freire has omitted to state one very important fact with reference to the vaccinations practised during the period included in this tabular statement. The date of the vaccinations is not given. Fortunately I am able to supply this omission from his journal containing the names of the vaccinated, which he kindly placed in my hands during my stay in Rio. I find from this record that the inoculations were practised as follows:

January	392
February	342
March	611
April	139
May	273
June	813
July	481

"Now it is well known that June and July are months during which yellow fever does not prevail in Rio, and that in fact the month of May furnishes, as a rule, but few cases.

"The exposure even in an epidemic year amounts to very little during the months of May, June, and July, and may be considered practically *nil* in a year like 1885, when the whole mortality was only 278 in a city of 400,000 inhabitants. But Dr. Freire has included in his list 1294 persons who were vaccinated during the healthy winter months of June and July, and who presumably had been exposed during the preceding comparatively unhealthy months of January, February, March, and April. If these 1291 individuals were protected from an attack of yellow fever by the inoculation practised in June or July, what protected them from being attacked during the preceding months when yellow fever was prevailing to some extent?

"We remarked with reference to those persons selected for vaccination in 1883 and 1884 that 'in selecting foreigners and preferably those who had recently arrived in Brazil for his first experimental test of the efficacy of his protective inoculations, Dr. Freire has given evidence of his confidence in the method of prophylaxis proposed and of an honest desire to demonstrate its value.'

"In his inoculations practised in 1885 we no longer find any evidence of such selection, and so far as we can judge the vaccinated persons simply represent the average population of the city of Rio. It is well known that this population includes a large number of persons of foreign birth and especially of Portugese. The whole foreign-born population probably does not fall below 100,000 persons, but I have not been able to obtain any exact statistics with reference to this point. Dr. Freire vaccinated 2186 natives and 865 foreigners. Let us assume for the present that the 1760 persons vaccinated by him during the months of January, February, March, April, and May, were comparable so far as susceptibility to yellow fever is concerned with 300,000 of the population of Rio. In this estimate we exclude 100,000 of the population on the supposition that this number may have enjoyed immunity as a result of having suffered an attack of the disease, 278 deaths in a population of 300,000 gives less than 1 death per 1000, and there should not

have been over 2 deaths among the 1780 persons inoculated by Dr. Freire during the months of yellow fever prevalence.

"Let us look at the matter in another light. Dr. Freire gives the following table showing the length of residence in Brazil, of the foreigners inoculated in 1885:

For a few days	26
For a few months	71
From one year to one year and a half	69
Two years	107
Three years	98
Four years	126
Five years	103
On board ship (de passage)	9
More than five years	256
Total	865

"These figures also include the foreigners vaccinated in the healthy months of June and July, and those temporarily in the city (a few days 26, on board ship 9), but they will serve our present purpose, which is to call attention to the fact that 759 of the total number given had been in Brazil (and presumably in Rio) more than a year and a half, and had consequently passed through the preceding epidemic year (1884) without contracting yellow fever. If these persons resisted yellow fever during an epidemic, in which the number of deaths amounted to 1597, how can it be claimed that they are protected by a vaccination made in 1885, when only 237 deaths occurred, scattered about (sporadic) in a city of 400,000 inhabitants? the same argument applies with greater force to the 359 foreigners inoculated who had resided in Brazil for five years and above (five years 103; more than five years 256). Unless the list includes persons who had already suffered an attack of yellow fever, these individuals had passed through the epidemic of 1880 (1623 deaths) as well as that of 1883 and 1884, without contracting the disease, and we can hardly ascribe their immunity in the comparatively healthy year, 1885, to Dr. Freire's inoculation."

I pass now to the year 1886, during which Dr. Freire inoculated 2763 Brazilians and 710 foreigners, again including in his statistical tables those vaccinated after the epidemic season had passed. In reviewing these statistics, I remark as follows:

"We have quoted this last report of Dr. Freire *in extenso* in order to do him full justice by allowing him to state his own case. We shall now proceed to show that his statistics are fallacious, and that the percentage of mortality among the vaccinated, which he finds to be ten times less than among the non-vaccinated, results from a misuse of the statistical method and from a number of factors, which are favorable to Dr. Freire's statistics as he has stated them, but not to a fair test of his method of prophylaxis.

"In the first place, we would call attention to the fact that while during the comparatively healthy year, 1885, the immunity among the vaccinated of that year is said to be complete (see report of 1885), the number of deaths during the epidemic year which followed is stated by Dr. Freire himself to have been eight. Taking all of the vaccinated of the two years, and without making any allowance for the considerable number of persons vaccinated who had, no doubt, left the city before the epidemic of 1886 occurred, Dr. Freire with a total of 6524 vaccinated, and a total of 8 deaths, makes the proportion one per thousand. This is equivalent at the outset to an addition of 1476 persons to the number vaccinated, who being imaginary persons and not having been exposed to the epidemic influence simply aid in rounding up the general percentage of mortality in Dr. Freire's favor to the even figure of one per thousand. This is but one of many factors which go to make up this favorable showing. Reference to Dr. Freire's MS. Journals, which he kindly placed in my hands, shows that of the total number vaccinated during the two years, 4465 were vaccinated prior to the epidemic of 1866, that is to say, before the 1st of January, 1886. How many of these left the city before the outbreak of the epidemic, how many were only temporarily in the city when vaccinated, how many died from other diseases, I cannot say; but it is a significant fact that of the 3051 vaccinated prior to August, 1885, Dr. Freire has only one fatal case to report, while out of 460 persons vaccinated in January and February, 1886, he reports five deaths, a mortality of more than one per cent., which he gives as the general mortality among the non-vaccinated. This is not apparent from Dr. Freire's own statement of the case, but is nevertheless true, as I shall proceed to show. In his report which we have just given in full, he does not give the date of the vaccination of these individuals, but upon referring to his MS. Journal for 1886, I find that No. 3 of his list, Jose, son of Jose da Costa Vieira, was vaccinated February 12, 1886; No. 4, Paschoal Ruffino, on the 6th of February, 1886; No. 5, Henri Constance, on the 1st of January, 1886; No. 6, Fernando Argenteiro, on the 20th of February, 1886; and No. 7, Antonio Saraiva, on the 12th of February, 1886. The same MS. Record for 1886 shows that during these two months—January and February, 1886—the total number vaccinated by Dr. Freire was 460. That is to say, the mortality among those vaccinated during these two months was more than one per cent. On referring to the mortality lists of the city for the same two months, I find the total number of deaths to have been 369, which in a total susceptible population of 160,000 (Dr. Freire's estimate) would give a mortality of one in 436."

Time will not permit me to extend any further this analysis of Dr. Freire's statistics, and I must refer you to my complete report for additional details, and for an account of my personal investigations in Rio de Janeiro. Nor can I occupy any further time in an account of the inoculations practised by Dr. Carmona y Valle, of Mexico, and of his alleged discovery of the specific cause of the disease under consideration. A simple perusal of Dr. Carmona's published work is sufficient to convince any competent bacteriologist that owing to a defective technique and inexperience in bacteriological researches, he has fallen into serious errors of observation and of inference, and that his supposed discovery has no scientific basis.

From what has been said, it will be seen that the question of yellow fever etiology is still unsettled, and that it remains, in fact, just where it was left by the Commission sent to Havana in 1879 by the National Board of Health. The researches made by myself as a member of that Commission, showed that in yellow fever there is no microörganism present in the blood of the sick demonstrable by the highest powers of the microscope. This

conclusion is supported by my more recent researches by the method of cultivation. Before, however, abandoning all hope of finding a specific "microbe" in the tissues, I desire to make cultures from the various organs, obtained at the earliest possible moment after death. Unfortunately, the opportunity did not offer itself for this important experiment during my visit to Brazil and to Mexico last year, but I hope to have the desired opportunity in Havana during the present summer, and shall also give special attention to a search for the yellow fever germ in the alimentary canal, where it may possibly be located, as is the case in cholera. It is true that the clinical history of the disease does not especially point to this location, but in a research of this nature, it will not answer to reject any possible hypothesis, because of preconceived opinions; and inasmuch as the present state of science justifies a belief in a specific microorganism, as the essential agent in the etiology of this disease, it is imperative that the investigations be continued until success crowns our efforts.

ORIGINAL ARTICLES.

EXPLORATORY LAPAROTOMY.

By J. M. BALDY, M.D.,
of Philadelphia.

The whole subject of exploratory laparotomy is daily assuming such increasing importance that it is becoming necessary to have some exact data from which to judge of the propriety of this procedure. There is little doubt in the minds of most operating surgeons as to the importance of a complete and intelligent exploration of the abdominal cavity in all cases of obscure abdominal troubles of a serious character, which threaten life, and which refuse, within a safe amount of time, to yield to medicinal treatment. The active hostility to operative procedures about the abdomen comes, in great part, from so-called surgeons, men who have either had little or no practical experience in these matters, or who have had some very unfortunate results. Again, a quiet but determined opposition is often to be found amongst physicians. It is hard for these gentlemen to overcome the dread of interference with the peritoneal cavity, a dread which has been so thoroughly instilled into the professional mind that it will take, I fear, many years of patient work to overcome it. Even in cases in which the diagnosis is easily made, and in which every moment lost is of the gravest importance, men still hang back from a surgical procedure, apparently in the hope that something almost supernatural will intervene to save the patient. Where a doubt rests on the diagnosis, this reluctance becomes almost a dread, and generally calls forth an ill-timed opposition, until eventually the operation must be made, only to be found to be too late, or perhaps it is not made at all.

The fact cannot be too constantly kept before the profession that an exact diagnosis in abdominal diseases is very often impossible. This is the expressed opinion of the great majority of abdominal surgeons to-day, and it is the exception to find one bold enough to claim otherwise. In the words of Thomas, "he who declares that he does not frequently err belongs to one of two classes: that of those who lack the intelligence to appreciate their shortcomings, or the courage to confess them, or to that of those who by *suppressio veri* or *suggestio falsi* are shortsighted enough to hope to deceive the community which watches their careers." When such men as Tait and Thomas boldly acknowledge our lack of diagnostic precision, it is time for us to lay off timidity and embrace every means at our command to overcome the difficulties of the situation.

If it were certain that a band was binding a loop of intestine down, and strangulating it, or that there was a purulent peritonitis, or one of a dozen other conditions present, even a physician would not hesitate to have the abdomen opened, and the strangulation relieved, the peritoneal cavity washed out and drained, or whatever else might be found necessary. The risk to life which the operation itself might bring would be unhesitatingly accepted by any intelligent thinker, and would not have very much weight against an operation which offered such positive chances of relief and cure. But when a case is presented in which there is a very grave doubt as to the diagnosis, especially when the patient seems to be in pretty good general condition, and with the hope of something turning up constantly leading one on, the temptation to wait becomes great. This is the more so because there is a decided feeling of uncertainty in the minds of the profession at large, excluding operating surgeons of experience, as to the amount of risk to life the patient will be exposed to from an operation *per se*, provided nothing of a dangerous character be found to exist after the operation has been made.

It is with the hope of adding something to the literature of the subject, which may at least be a beginning toward a final settlement of this question of danger, that I have collated the following statistics.

I am fully awake to the fact that conclusions drawn from statistics are often misleading, and can at best be but approximate; and yet withal they have their place and serve their object. I have been at some considerable trouble to make this list as reliable as possible, but realize that some errors have probably crept in, and that some cases must have been included which should not have been. However, I do not think there are enough of them materially to alter the results. I have not used any journal cases, excepting in such instances as the operator has directly referred me to them. I have excluded all such for the obvious reason that the case might be only one of many done by the same operator, and

it would be manifestly unfair to include his favorable and not his unfavorable ones, or *vice versa*. All cases used have been those of American surgeons; they have been obtained directly from the operator himself, and presumably include all such operations done by him during the past five years. Such cases only as have had the abdominal cavity opened and no operation or extensive separation of adhesions done inside the peritoneal sac, whether the diagnosis had been made before the operation or not, have been admitted, so far as I have been able to judge. Cases of simple irrigation or drainage have been included for the reason that they are often almost of necessity part of an exploratory operation, and do not complicate it to any great degree.

A careful analysis of the list develops many interesting features. There are in all 154 cases, representing the work of 46 operators, many of whom will be recognized as men of prominence. As reported, the list is classified as follows:

	Cases.
Carcinoma	3
Papilloma	5
Malignant	8
Sarcoma	12
Cancer	33
Pregnancy	3
Peritonitis, acute, chronic, suppurative	11
Peritonitis, tubercular	17
Uterine fibroids	16
Diseases of the uterine appendages	10
Diseases of the liver, gall-bladder, and their ducts	9
Cysts of kidney	2
Pelvic or iliac tumors	8
Pelvic abscess	2
Purulent fluid in peritoneal cavity	2
Abscess of ovary	1
Suppurating sinus	1
Cellulitis of broad ligament	1
Perimetritis	1
Acute micrococcal development	1
Hyperæmia of the pelvic peritoneum	1
No disease found	3
Penetrating stab-wound of abdominal wall	2
Penetrating gunshot wound of abdominal wall	1
Not stated	1

The total number of deaths is 25, making the general mortality somewhat over 16 per cent. At first sight this death-rate is appalling, and would naturally stop all talk of exploratory operations, but when we come to analyze further the deaths and their causes, this will be considerably modified. The list is considered in two divisions; malignant, 61 cases; and non-malignant, 93 cases.

Among the malignant cases age does not seem to have differed more than in malignant disease in other parts of the body. The mortality between the ages of twenty and thirty years is over 33 per cent.; from thirty to forty it drops to almost 19 per cent.; but between forty and fifty it again rises to over 33 per cent., only to drop back to 18 per cent. between fifty and sixty. Of the 55 recorded cases, 40 occurred between the ages of thirty and sixty years. The extremes were five and seventy-four years.

Of the 87 recorded cases of non-malignant disease, 71 occurred between the ages of twenty and fifty years, with a mortality ranging from 6 to 16 per cent. The mortality of those from one to ten, and above sixty years of age is from 50 to 100 per cent. I take it that these results are not very far from those of any other major operation.

The number of females far exceed those of males; the mortality amongst the males is, however, very much the highest. There are 61 recorded malignant cases; of these, 57 are females and 4 males. The female mortality is over 21 per cent., the male is 50 per cent. Of 93 recorded non-malignant, 83 are females and 10 are males; the female mortality is over 8 per cent., the male is 40 per cent.

At the time of the operation the condition of the patients varied greatly. Of 33 recorded malignant cases, 7 were in good or fair condition, 19 in bad, and 7 in very bad; of 76 recorded non-malignant cases, 25 were in fair or good, 34 in bad, and 17 in very bad condition.

The length of time that the disease had existed before the operation was in 32 recorded malignant cases, under one month, 1; from one month to a year, 23; over one year, 8. Of 62 non-malignant, 11 had existed under one month, 25 from one month to a year, and 26 over a year.

Of 32 recorded cases of malignant disease which recovered from the operation, 2 lived under one month, 15 from one to six months, 15 over six months; of 61 non-malignant, 2 lived under one month, 9 from one to six months, and 50 more than six months.

An analysis of the effects of the operation on the condition requiring it presents some very remarkable facts. 27 malignant and 52 non-malignant cases are recorded. Of the malignant, there was more or less improvement in 14, and no improvement in 13 cases; of the non-malignant, there was no improvement in 12, but there was improvement in 40 cases. The change for the better in some of these amounted to an absolute cure, and in many others it was very great, as well as permanent. This is all the more remarkable when it is remembered that nothing could be done for the patient's relief after the abdomen had been opened, but the wound had been closed with everything left as it had been found. This bears Tait out well in the statement he made some years ago, that the mere handling of the abdominal contents seemed in many cases to give relief. The modus operandi is, I think, beyond explanation, but the bare fact still remains, to which I can personally bear testimony.

14 malignant and 11 non-malignant cases died. Of the malignant, 1 died within a day, and 13 from one to seven days; of the non-malignant, 3 died

within a day, 6 from one to seven days, and 2 lived over a week. The causes of death in the malignant cases were:

	Cases.
Exhaustion	4
Peritonitis	2
Shock	1
Intestinal obstruction	1

with six cases unrecorded.

Of the non-malignant:

	Cases
Collapse	1
Shock	1
Tetanus	1
Peritonitis	2
Heart clot	1

with five unrecorded cases.

I have already stated that there were 25 deaths. If we examine these deaths we find that 14 of them were among the malignant cases, making a death-rate of 22 per cent. In other words, the mortality of the malignant is just twice as great as that of the non-malignant. Palmer has stated "that patients with internal cancer have little vitality and a small amount of shock is liable to shorten life, if not prove fatal." The results here obtained would seem to verify his statement.

Death in three of the malignant cases cannot be attributed to the operation, and probably if fuller particulars had been given in the other 11, most of them could be eliminated. As it stands, about 18 per cent. of these deaths were hastened by operation. Here, however, we must take into consideration that the death of all was only a matter of time, and possibly a very short time. The operation was left in most of them, as usual, until the last moment, and when the condition of the patient was, as recorded above, either "bad" or "very bad" in 26 out of 33 cases.

A much more pleasing picture presents itself in many ways when we consider the non-malignant cases, but here, too, we find a lamentable lack of determination and pluck on the part of some one—either the patient or the physician. Had an operation been undertaken earlier most of the deaths could probably have been avoided. There are in all 11 deaths, a mortality of over 11 per cent. Of these, I think we can, in all fairness, eliminate seven from the list of those in which death was hastened by the operation, leaving four cases in which the death was either hastened or caused by the surgical interference, a mortality of over 4 per cent.

Of these 4, 1 was a case of perimetritis, which died in nine hours; 1, a case of tubercular peritonitis, which died in ten days of acute peritonitis; 1, a case of hobnail liver, which died in forty-eight hours of shock; the last 1, a case of uterine fibroma, which succumbed in ten days to tetanus. The following are the 7 cases which I would eliminate:

1, Purulent peritonitis (dying); death in a few hours.

2, General peritonitis (very low); death in five days.

3, General peritonitis (almost in collapse); death in two days.

4, Suppurative peritonitis (very bad); death in four days.

5, Ruptured tubal pregnancy (in collapse); death in twenty-four hours

6, Turbid serum in peritoneum (almost moribund); death in four hours.

7, Solid tumor of liver; death in two days.

This last operation was performed as a last resort at the express desire of the friends.

The whole number of deaths hastened by operation, in both malignant and non-malignant disease, is 15, a death-rate of 9 per cent.

There are 16 cases of uterine fibromata with only 1 death, and this from a cause which is as likely to complicate any other surgical procedure as the one under consideration. Furthermore, the prevention of tetanus is, as far as we know, entirely beyond our control. An operation to remove the ovaries or the tumor itself in the case of a uterine fibroma, which results in being able to do nothing, is probably as typical a case of exploratory laparotomy, in its results, as we can cite in judging of the danger of exploration. Another class which is just as typical and which occurs frequently, is disease of the uterine appendages. There are ten cases of this disease without a death. In fact, it seems to make little difference in this class whether the disease is removed or simply explored; one can be done with almost as much impunity as the other.

The penetrating wounds, 3 in number, all made good recoveries.

8 pelvic or iliac tumors, which could not be differentiated, all got well, as did also 2 of the 3 cases of pregnancy. The third was a ruptured tubal pregnancy, and the patient was almost dead when operated on. The 2 cases which recovered both aborted. 22 per cent. of the diseases of the liver, gall-bladder, and their ducts succumbed to the operation. I can only explain this on the ground of late operation.

The cases of peritonitis are among the most interesting and instructive on the list. I find 2 of chronic, 6 of general acute, and 3 of suppurative peritonitis, a total of 11 cases, with 4 deaths. 2 of these deaths were from suppurative and 2 from general acute peritonitis. 36 per cent. is a very large mortality, but the great death-rate of this disease where no operative interference has been practised must be remembered as well as the fact that all 4 deaths were almost certain at the time of operation, and would undoubtedly have occurred in any event. It is only another warning against the dangers of an expectant treatment in abdominal troubles. If we wait, and operate, as has been the custom too often, only as a last resort, we can never expect to render our results better than they have been in the past.

Probably the most remarkable class here recorded

is that of tubercular peritonitis. In a paper read before this Society last year, a case of tubercular peritonitis was reported, where the abdomen had been opened and death had followed. In commenting on that case, the reporter, on that occasion, a prominent physician of this city, said: "Incision should be avoided in tubercular peritonitis, unless the inflammation is purulent. Not only so, but where the tubercular process is present, even paracentesis should be practised only in those cases in which dyspnœa, from over-distention of the serous sac with fluid, threatens life. The danger of operative interference in tubercular inflammation of serous sacs is that the inflammatory process nearly always becomes purulent." In the discussion which followed, operative interference was generally condemned for various reasons. These opinions I have found to be pretty general among medical men. The facts are a decided contradiction of this, however, and in view of our rapidly accumulating experience, this subject will have to be very carefully reconsidered. Kussmaul reported 30 collected cases of operations on this disease to a recent Congress of German Surgeons. During the discussion of his paper 6 additional cases were reported, making a total of 36. There were in all 6 deaths, 4 of which were from general tuberculosis, and 2 were attributable to the operation. Many of the cases were encysted, and most of the patients were operated on under the supposition that there was an ovarian tumor or other cystic trouble present. I am now able to add 17 cases to this list, with but 1 death, the cause of death being general peritonitis. Thus we have a total of 53 cases with a death-rate of somewhat over 5 per cent. The 17 cases I have collected resemble in many respects those reported in Germany. They were for the most part cases of misdiagnosis or pure explorations for diagnosis. The manner in which they were dealt with varied. In some the ascitic fluid was simply evacuated, and the abdominal wound closed. In others a drainage-tube was inserted. Again, some were irrigated with water, or with water medicated with bichloride of mercury, and in still others iodoform was dusted into the peritoneal cavity. But there does not seem to have been any better result from one line of treatment than from another. The simple opening of the serous sac, with the evacuation of the ascites, probably supplemented by drainage, appears to be as beneficial as any. It is interesting to note that the patients not only did not die from the operation, but most of them had more or less permanent relief. Of the 16 cases of recovery, 5 are reported as cured, 4 as much improved, 2 as improved, and 4 as having no return of the ascites. In but 1 case did the ascites reaccumulate, and still the patient was alive sixteen months after the operation. Some of the patients have now remained well sufficiently long for us to be able to speak of their recovery with certainty. The amount of time now passed since the operation has been in 1 case over three years, in 2 cases over two years, in 5 cases over one year, the others varying from three to six months. The condition of 13 of the patients at the time of operation was either "bad," "low," or "apparently dying." Four only were in good condition. The case of death is reported as being very low, and a point of probable interest is that it is the only male in the series. It would seem then that operative interference in tubercular peritonitis is not attended with the risks attributed to it; but, on the contrary, is in a great majority of cases positively beneficial. There is a decided growing opinion among surgeons as to the propriety of adopting operative measures for the relief of this disease. Only within the past few months this subject was discussed in England by Mr. Knaggs and his colleagues with the result of reporting a number of additional cases, and the whole discussion taking a turn favorable to a further trial of operation.

To recapitulate, we have here a total of 154 cases of exploratory laparotomy, with a death-rate of over 16 per cent. By eliminating such cases of death as were very evidently not due to the operation itself in any way, the mortality becomes somewhat over 9 per cent. If we throw out the malignant and consider only the non-malignant cases, we find a death-rate of over 4 per cent. I think it fair to ignore the malignant and judge only from the non-malignant cases, because the operation in cancer is almost always a late one.

Even the mortality of 4 per cent. which we give to the non-malignant patients, is deceptive. For instance, of the 4 deaths, 3 are reported as being "very low" at the time of operation, 1 case of perimetritis, 1 of tubercular peritonitis, and 1 of hobnail liver. So in reality, although the operation directly hastened death, it probably only did so on account of the bad condition the patients were in, and should, therefore, not be taken into account in judging of what would be the result in a case operated on early in the attack, and which was still in good condition. What surgeon would expect to lose a case of simple exploration, of a patient suffering from a hobnail liver, from shock, under ordinary circumstances? The fourth case died of tetanus. This case was one of uterine fibroma, and was in very poor general condition, having suffered from the disease for over ten years. It is the only one I am inclined to give much importance to, and the only one which, after careful consideration, seems to me to have been a legitimate death from operation. Looking at the subject from this point of view, the death-rate falls at once to between one and two per cent., and this is, I think, about what it should be. Here is where Tait left it some years ago. In

his first 1000 cases of abdominal section, he had 93 exploratory with 1 death, and even this death was in a broken-down woman of sixty years, who died really of prolonged sickness after the anæsthetic.

These tables, I must admit, at first sight do not show what I should wish them to. But by considering only the non-malignant cases and by a fair exclusion of such deaths as cannot in justice be attributed to the operation alone, the results are not very far from the truth. I do not personally think there is any considerable amount of danger attached to a simple exploration of the abdominal cavity. A general mortality of over 16 per cent. as here shown can only mean that most of the cases had been undertáken when the patients were in such a low condition that the slightest shock would turn the balance against them. This is only too well shown to be true by reference to the condition of the patients before operation, as reported in this list. There is altogether too much waiting and expecting. If there is sufficient abdominal trouble of an obscure nature, to endanger life, which will not yield in a reasonable time to the ordinary methods of treatment, do not wait until the patient is worn out and in a condition in which no one would attempt any other major operation, but make a careful and complete exploration of the peritoneal cavity. It will be an exceptional case in which any harm will be done, and many an obscure case will be cleared up and many a life saved.

This line of treatment is growing more and more into favor with surgeons, and when the physician joins hands with the surgeon on this common ground the profession will no longer have to reproach itself for such a death-list as Treves reports for England, viz., over two thousand deaths every year from intestinal obstruction alone.

Note.—I wish to express my indebtedness to the following gentlemen for cases, many of which are as yet unpublished: Drs. William Goodell, 14; John Homans, 17; G. J. Englemann, 4; Paul F. Mundé, 3; H. P. C. Wilson, 4; W. W. Keen, 2; Henry O. Marcy, 8; C. D. Palmer, 5; R. B. Maury, 2; T. G. Morton, 3; R. S. Sutton, 1; Joseph Eastman, 1; Joseph Price, 7; Howard A. Kelly, 9; James B. Hunter, 6; John A. Wyeth, 3; R. F. Morris, 1; W. O. Werder, 1; William C. Wile, 1; John Scott, 1; Paolo De Vecchi, 1; George W. Porter, 2; W. B. Bontecou, 2; F. W. Rockwell, 1; J. R. Weist, 2; E. J. Beal, 1; Clinton Cushing, 4; T. A. McGau, 1; J. M. Barton, 1; Ap. Morgan Vance, 1; Donald MacLean, 1; Henry Beates, 4; John B. Deaver, 2; E. E. Montgomery, 5; Mordecai Price, 5; Harris A. Slocum, 1; W. C. Goodell, 1. I have received many others, but have been unable to use them, as they have been in one way or another somewhat more than simple exploration, at least as I have classified the list.

328 South Seventeenth St.

ACUTE EXOPHTHALMIA.

By RICHARD H. DAY, M.D.,
of Baton Rouge, La.

Under this heading, it is my privilege to report a very interesting case of sickness which recently came under my observation and treatment.

The subject is a colored boy, born December 6, 1872. His parents are still living and enjoy good health. The father is eighty years of age, his mother much younger. The boy is of medium size for his age, well built, and since infancy has enjoyed fairly good health. No constitutional taint that I can detect; yet his home surroundings, especially as to sleeping apartments, are very unfavorable and well calculated to engender systemic impairment and deterioration of the vital fluid.

I was requested to visit this boy, Abe W., on the morning of the 27th of January, 1888. The day before he had been out all day hunting in a cold, drizzly rain. When he returned home about dusk he was in his usual health, but fatigued from the day's hunt, and after eating his supper went to bed. Sometime during the night he became restless and complained of intense pain in his head. When daylight appeared his parents discovered that his left eye was very much swollen, and concluded that he had injured it the day before while hunting; but he insisted that he had not, and I am quite sure that he was correct, for there was an entire absence of any appearance or symptoms of traumatism. I found him with a moderate grade of fever, temperature 103° F. The bloodvessels about the temples were distended and hard. He complained of great pain through the temples and post orbital region of the left eye. The eye was pushed forward from its socket and protruded fully one-half to three-fourths of an inch beyond its normal site, presenting a strange spectacle, indeed, looking as though it would drop out at any moment. The lower lid was stretched as a tight cord across the lower segment of the sclerotica, while the upper lid was pushed forward and did not reach the upper corneal edge. The pupil was dilated, sight slightly impaired, but I could discover no cloudiness nor abnormal condition of the aqueous or vitreous bodies; though the globe seemed to be much distended and more conical than its fellow. I had no ophthalmoscope with which to examine the chambers and the posterior tissues of the eye, and hence am unprepared to say what abnormalities, if any, existed there, except as revealed by the symptoms and the subsequent history of the case.

Dunglison defines exophthalmia, "A protrusion of the eye from its orbit, occasioned by an abscess or tumor in the cellular texture of the orbit."

The suddenness of the attack and the rapidity with which the globe was thrust forward from its socket in this case, excluded the growth of a tumor, or phlegmon, or exostosis. I diagnosed the lesion to be excessive vascular congestion of the numerous and tortuous bloodvessels in the posterior orbit; and perhaps infiltration of serum or blood, from

rupture of some of the venous capillaries, in the connective tissue and Tenon's capsule behind the soft elastic fatty pad on which the globe rests, thus pushing the whole eyeball forward.

I visited my patient daily for six or eight days, watching his case very closely and with great interest, for the case was a novel one to me, and the first of the kind I had ever seen.

I kept him on small doses of calomel and ipecac for forty-eight hours and purged him with senna and epsom salts. Locally I instilled into his eye at intervals four or five drops of the following solution:

℞.—Sulph. zinc. . . . . gr. j.
Sulph. atropia,
Sulph. morphia . . . āā gr. ij.
Aquæ destil. . . . . ℥ j.—M.

And a soft muslin bag containing infused tea leaves was laid over the eye. On the third day, his bowels having been well evacuated, I left off the calomel and gave him quinine in five grain doses every four hours, and applied behind his left ear a small blistering plaster, which drew a good blister. I could now begin to discern some recession of the protruded organ, but even up to the end of the eighth day it was still prominent above the bridge of the nose and the supraorbital brow. The local treatment was continued, and a tonic pill composed of quinine, pulvis ferri, āā grs. ij, pulv. digitalis j, was given three times a day.

When the eye had sufficiently receded to lessen the tension of the lower lid, so that I could depress or draw it down, I discovered an ecchymosed condition of the sclerotic, or what in common parlance is called a *bloodshot* appearance, which would seem to strengthen the theory of the extravasation of blood in the deep tissues in the bottom of the orbit, as the true pathological lesion.

I saw and examined this boy again on the 1st of March. The eye had quite receded to its normal position, and his sight, so far as I could judge, was not impaired, and he could distinguish the different colors. The globe had lost its distended and conical appearance, and I thought was somewhat flatter in its general aspect than the other eye.

I have looked in vain over my standard authors for light upon this unique case. They all treat of exophthalmic goitre, several cases of which I have seen in the course of my professional life; but these differ from my case in every characteristic, except only in the protrusion of the eyeball.

My patient had no affection whatever of the thyroid gland, no heart failure, and was not anæmic or chlorotic. The case was not chronic in origin, but was sudden and acute; was not protracted in character, but sharp and violent, and quickly yielded to medical treatment.

It occurs to me that within the last six or eight years I have read in medical periodicals, reports of cases somewhat similar in character to the one I now report, having occurred somewhere in the West, but I find it impossible to recall to mind the history of the cases or the journals in which they were published.

If any medical gentleman reading this report can supply the information, I shall be very thankful; or if similar cases have been witnessed by others and not yet made public, I hope they will be written up and published for my own enlightenment and the benefit of the medical profession.

A CASE OF SYMMETRICAL GANGRENE.

By M. A. BEADER, M.D.,
of Lyons, N. H.

The following case presents several interesting features and appears worthy of record:

The patient, a vigorous man, about forty years of age, appears in perfect health. His complexion is fresh and ruddy and his muscles extremely well developed. All the functions are normal, save only that he has a peculiar weakness causing a slight halting in his gait. He drags one foot slightly, as though unable to control its movements perfectly. He states that this defect became apparent about six years ago. It began soon after he had experienced "a stroke" or fainting fit, which he had attributed to drinking largely of cold water whilst overheated. He recovered soon and perfectly from this attack with the exception of this imperfection in his gait, which seems to be of a paralytic nature.

About eight months ago dark spots, resembling bruises but more clearly circumscribed, appeared just below the knee on both legs. They were painless but gradually became of a deeper color, the skin over them being smooth and glossy. They were not attended by heat or swelling, but in the early stages were indistinguishable from well-defined patches of purpura. At a later period ulceration began, the skin breaking down and leaving dark, purplish excavations. This process extended in an irregular way, whilst healing progressed imperfectly in the centre of the diseased area. The new skin over the parts that were healing was almost black and was very smooth and glossy. There was no hemorrhage at any time, no secretion of pus, and scarcely any odor. A slight watery exudation forming a glazing over the diseased surface was the only discharge apparent.

The ulcerations were of a gangrenous type without any active granulation process or formation of the red line, the entire course of the disease being extremely indolent. The margins of the ulcers were not elevated or hardened and did not present a punched-out appearance. Their color resembled very closely that of a sloughing bedsore. There were no varicose veins in the vicinity. No history of syphilis could be traced. Thoroughly well nourished, with sound teeth and healthy gums, the patient did not present any of the marks of scurvy. He had not taken ergot or mercurials, so far as could be learned. In fact, he had been in good health in every way with the exception of the imperfection of gait above mentioned.

Upon the first appearance of the spots he imagined

that they might be bruises caused by placing his knee against the stick while sawing wood. But when the disease appeared on both knees and persisted and increased month after month in spite of the greatest care, it became evident that it was not the result of injury. The lesions were symmetrically located about three inches below the patella on each leg. The diseased patches extended almost completely across the anterior portion of the leg, but the ulcerations were deepest just below the condyles of the tibia well around toward the sides of each leg. The right limb was considerably more affected than the left, the largest diseased portion being on that side and located on the external aspect of the tibia, a space between three and four inches in diameter being involved.

The symmetrical distribution on both limbs, as well as the superficial character of the ulceration and the way in which it spread on each limb, indicated that it could not have been the result of embolism or thrombosis. It is noteworthy that the lesions were in close relation with like portions of the same nerves in each limb. The patient had been under the care of a physician recently deceased, and could not give any trustworthy account of the treatment that had been employed, except to say very positively that it had been entirely ineffectual.

When I first saw him he had been using an ointment of some kind which apparently had been somewhat irritating. I directed a simple protective dressing of carbolated vaseline to be used after the ulcers had been very lightly cauterized with strong carbolic acid. Occasionally they were to be dusted also with iodoform. Under this treatment healing progressed slowly but better, according to the statement of the patient, than it had under the more irritating treatment that had evidently been employed previously.

At the outset, in this case, it is evident that there was a failure of the capillary circulation over the small spots first affected. There was no extravasation of blood, the spots remaining well defined, and the skin in their vicinity not undergoing any changes of color as it does when bruised. At this stage the lesions were simply purpuric. Subsequently the nutrition of the parts having failed, ulceration resulted and became extremely indolent. There was some attempt at repair in the central portions of the diseased areas, but it was very imperfect. The symmetrical distribution of the lesions on both limbs points to a central origin. The fact also that the patient had a paralytic disorder may be significant in this connection.

It would seem, in this case, that the vasomotor nerves controlling the circulation and nutrition of the parts affected were primarily at fault. The succession of events indicates the existence of a disorder of the same type as Raynaud's disease or symmetrical gangrene. I have not been able, however, to find any description of a case in which the lesions were situated in the particular locality which they occupy in the case under consideration.

MEDICAL PROGRESS.

The Ligature and Dressing of the Umbilical Cord.—JACOBI, in the *Archives of Pediatrics* for April, 1888, describes his method of treatment as follows: If the ligature be thin, it is liable to cut through the walls of the blood-vessels prematurely; if too thick, it may not suffice to compress them satisfactorily. It ought to be applied at a distance of from one and a half to two and a half inches from the abdominal wall. Not nearer, in order to avoid the effect of the immense muscular power of the umbilical arteries inside the abdominal cavity. A second ligature is placed about an inch from the first, and the cord cut between them. It is a good rule, which must surely be adhered to in every case of thick cord, to apply an additional ligature between the first and the abdominal wall, to avoid hemorrhage from the insufficiently compressed arteries, which may take place after the cord has commenced to shrink. The abdominal end of the cord is then wrapped up in a dry and soft piece of linen, lint, or cotton, placed on the left side of the abdomen, and fastened, by means of a soft flannel bandage, which is wide enough to cover the larger part of the chest and all of the abdomen, so as not to slip.

In wrapping up the end of the cord no oil must be used. Warmth and dryness favor mummification; moisture and exclusion of air, gangrene. This holds good also for the cord when it is separated from the living baby by an additional ligature, and in the dead. Thus, the former forensic axiom, that a dry cord proved life, which prevailed for decades after Meckel had demonstrated its fallacy as early as 1853, is absolutely worthless. Thus, fatty substances, and moisture of any kind, must be avoided as much as possible. Powdered subnitrate of bismuth, or oxide of zinc, or iodoform, or salicylic acid, one part with ten parts of starch, may be dusted round the insertion of the cord and over the stump daily. The latter application is not necessarily useless (from the point of view of antisepsis), for the separation of the cord is a gradual one, and not uniform through the whole thickness of the amnion and the three bloodvessels.

Creasote, Deeply Injected, in Phthisis.—DR. ROSENBUSCH gives an account in a Polish medical journal (*Przeglad Lekarsi* of February 4 and 11, 1888) of the cases of nine phthisical patients whom he treated by injecting creasote into the tissue of the lung. The results he obtained were excellent. The injections, which were given at intervals of two or three days, caused the cough almost to disappear and the quantity of sputum to diminish. In those cases which were not very far advanced the patients gained flesh, the dyspnœa and sweats ceased, the body weight increased, and frequently spots which had been dull on percussion cleared up. The temperature decreased from five to eight hours after the injections, the fall continuing at first for ten to twelve hours, a permanently normal temperature being subsequently registered. The injections were made into the affected portion of the lung, which was usually, of course, the apex. The in-

strument employed was an ordinary Pravaz syringe, with a needle from two to three inches in length. About eight minims (half a syringeful) of a three per cent. solution of creasote in almond oil were injected in each of two spots, the piston of the syringe being pressed down slowly. The patient was told not to breathe deeply, and after the injection to lie quite still for a few minutes. When the needle was not inserted deeply enough, some lancinating pain was apt to be produced by the irritation of the pleura. This, however, did not last long. No hemorrhage was ever observed after the injection, though in the case of one patient, who was subject to hæmoptysis, a slight coloring of the sputum was observed for a short time. If the injections were made into a cavity, or into one of the large bronchi, the patients said they could smell creasote when they coughed, and this substance could be detected in the sputum by chemical means. Of course, great care was taken to perform the operation under aseptic conditions, the skin, the needle, and the syringe being previously carefully washed with an antiseptic. The creasote used was the *creasotum e bitumine fagi*, or beech creasote. The writer promises a subsequent communication on the effect of these injections on the number of Koch's bacilli.—*Lancet*, March 31, 1888.

Putrid Bronchitis Successfully Treated by Inhalations of Corrosive Sublimate.—Korányi, of Buda Pesth, is quoted by Betz's *Memorabilien*, Band 32, Heft 7, as having treated successfully a case of putrid bronchitis, complicated by pleurisy and mitral disease, with inhalations of corrosive sublimate, as follows:

Hydrarg. bichlor. corros. . . .	½ gr.
Aquæ destill.	3⅛ ℥.

Of this solution, five drachms were inhaled morning and night.

Six days of this treatment resulted in a diminution of fever, and in a great improvement in the character of the sputa and the general condition of the patient.

The Antiseptic Treatment of Smallpox.—Cavaillon is quoted by the *Gazette de Montpellier* of March 3, 1888, in his account of the following method of treating smallpox by local antiseptics:

He opens the pustules as soon as they are full of purulent matter, and presses out their contents upon cotton. The pustules are then touched with cotton dipped in the following mixture:

Benzine.	15 ♏.
Water	10 ℥.
Pure alcohol	30 ♏.

This application is renewed until the crusts appear. When no more pus is found beneath the crusts an oily dressing is applied. If pus does not form freely the pustules are sprayed with the solution of benzine. After the twelfth day the following ointment is used:

Naphthol	75 grs.
Vaseline (with benzoin or oil of bergamot)	25 ℥.

Idiosyncrasy to Antipyrin. — Taylor reports, in the *British Medical Journal* of March, 31, 1888, the following case: I administered to a lady on two different occasions eight grains of antipyrin for attacks of migraine, and on each occasion, very shortly after taking it, a tight feeling of constriction was felt across the chest, with a burning sensation in the pharynx. These symptoms were immediately followed by sneezing, by intense suffusion of the eyes, and by quantities of mucus flowing from the nose, giving her all the appearances of having a severe attack of coryza; there was also great irritation in the larynx, causing severe fits of coughing, but unattended with expectoration. After a quarter of an hour these uncomfortable symptoms gradually subsided. There was no urticaria. I followed it up on each occasion with an equivalent dose of antifebrin (three grains) which (with one repetition in the course of an hour on the first occasion, but which was not required on the second) completely relieved the severe hemicrania, as it has done on subsequent trials without using antipyrin at all. It appears, therefore, that antifebrin may be used equally with antipyrin in migraine as in febrile conditions, and may replace it with advantage where the latter disagrees.

An Accident from Antipyrin in the Treatment of Rheumatism.—Giguel, in the *Gazette Hebdomadaire* of March 23, 1888, reports the case of a woman of nervous temperament, the subject of herpes and suffering from rheumatism in the right shoulder. He prescribed forty-five grains of antipyrin, to be taken in three doses, during twenty-four hours. Ten minutes after the first dose was taken the patient experienced sensations of great irritation about the upper and lower jaws, sneezing followed, and persisted for a quarter of an hour. A sensation of pricking was felt at the thyroid cartilage, and the voice became hoarse and rough; the temples throbbed, and the nares were occluded by mucus. The painful shoulder, however, was free from pain, and could be moved freely. Five hours after the drug was taken only a slight roughness of the voice remained. A second dose of four grains was followed by the same effect, at the same time, in less degree. During the effect of the drug the side of the head and neck were intensely congested.

"Imitative Tetanus." — Dr. Vicente G. Gáunchez, writing in the *Revista Científica de la Universidad Central de Venezuela*, records a case of "neurosis tetanica," or "imitative tetanus," which occurred in a native of Caracas, a young man who had always enjoyed good health. The patient began to complain of pain in the calves of his legs which caused him considerable difficulty in walking. There was no fever, but the pain increased, and some contraction of the flexor muscles of the leg occurred, rendering the man incapable of walking. Indeed, on the second day of the attack he could not turn in bed without a good deal of pain. He was unable to sleep, and suffered from mental anxiety. It was then elicited that his brother, who lived at a little distance, was suffering from tetanus, and that the patient, who went frequently to see him, had appeared to be greatly affected at the sight of his brother's spasmodic attacks, and had declared that he himself would die of the same malady.

Dr. Guánchez, however, attributed the pains to rheumatism, which was common enough at the season when this occurred. He treated the man with anodyne lini-

ments and jaborandi internally. No effect was produced, as intense rigidity of the legs, simulating ankylosis, came on, the patient obtaining no sleep whatever and the pain being still very severe. A purgative was prescribed, but the trunk muscles became affected and clonic spasms began to show themselves. Bromide, chloral, narcein, and codeia were prescribed, but none of these arrested the rapid progress of the affection. The convulsions increased, opisthotonos and lastly trismus occurred, and the man died on the sixth day. In this case the mode of invasion was different from that usual in true tetanus, which commences by affecting the muscles of the face and chest; again, there were no remissions, as in ordinary tetanus, but the disease progressed steadily and more rapidly than is usual in tetanus. As to treatment, Dr. Guánchez, who has had some experience of ordinary tetanus, has found mercury and opium sometimes successful, and in one notable case the cure appeared to be due to the constant and careful administration of curare. —*Lancet*, March 31, 1888.

The Treatment of Retained Placenta and Membranes, in Breisky's Clinic.—Bloch reports the treatment followed in Breisky's wards as follows:

1. Disinfection of the genitals.
2. Slow dilatation, with careful disinfection of the tents or instruments employed.
3. Disinfecting the interior of the womb, and intra-uterine examination by the finger.
4. Removal of retained membranes or placenta with polypus forceps, and intra-uterine disinfection.—*Centralblatt für die gesammte Therapie*, April, 1888.

Oertel on Diphtheria.—The *Lancet* summarizes Professor Oertel's conclusions regarding diphtheria, recently published, as follows:

In a few pages Professor Oertel alludes to the clinical and therapeutical bearings of these considerations. In the first place, the false membrane must no longer be regarded as the first pathological and pathognomonic sign of diphtheritic infection, and it is not surprising that energetic measures toward its removal are followed by fresh formation, since the morbid process is going on in the mucous membrane. Still, local treatment should aim at thorough disinfection of the buccal and pharyngeal cavities, which will at least prevent secondary infection of the stomach and intestines, and this is best effected by the frequent use of disinfectant spray. How far the disease is spreading may be judged by the degree of lymphatic gland swelling; and the degree of fever may bear upon the extent of general infection. When we know more of the influence of drugs upon ptomaines, in preventing their formation or hastening their conversion into innocuous material, we shall be better able to prescribe general remedies—such as quinine, mercury, or arsenic—with confidence; but meanwhile the chief hope lies in prophylaxis and the maintenance of the body in a state of nutrition, so that its cell elements may be able to resist successfully, and annul, the virus against which they have to contend. That this is possible is evident from what we know respecting other poisons and individual capacities of resistance.

In conclusion, Professor Oertel points out that the whole subject, from the first migration of leucocytes into the infected epithelium to the formation of necrobiotic foci in the spleen, proves the important part played by cells in the disease. It shows, he considers, that we must still go back to the cell theory if we would explain morbid action, and he puts forward his work as a contribution to Virchow's doctrine of cellular pathology, which is by no means so effete as some declare.

Formulæ for the Use of Digitalis.—Huchard, in the *Revue Gén. de Clin. et de Thér.* of March 22, 1888, gives the following formulæ:

Digitalis with bromides:

Tinct. digital.	♏ 30.
Potass. bromid.	℥ 5.
Aquæ destill.	℥ 9½.

Dose, one to three tablespoonfuls daily.

Digitalis and trinitrine

Tr. digital.	♏ 45.
Alcoholic solution of trinitrine, 1 to 100	gtt. 30.
Aquæ destill.	℥ 9½.

Dose, from two to six teaspoonfuls daily.

Digitalis and iodide of sodium:

Sodii iodid.	℥ 1.
Digital. pulv.	gr. 30.
Glycerin.	q. s.—M.

Ft. pil. 40 in num.

Sig.—Three or four pills daily, for five or six days.

The Effect of Cooking upon Starch.—In a graduation dissertation for the degree of M.D. in the Military Medical Academy of St. Petersburg, Dr. N. Butiagin gives an account of some experiments he has been carrying out with the view of determining the effect of cooking on the digestibility of starchy foods. He found that the activity of the saliva does not differ much amongst healthy persons, but that when people are badly nourished and weak, and especially when in addition to this they are suffering from disease of any kind, their saliva has a very perceptibly diminished power of dissolving starch. When starchy substances are subjected to prolonged cooking they become more easily digestible, and in this way compensation can be provided for the inactivity of the saliva of weakly persons. Thus, rice and peas were found to require three hours' cooking in order to render them as easily digested in the saliva of a badly nourished, nervous, hysterical woman (which had previously been found to possess only 88 per cent. of the normal activity), as they were with a single hour's cooking by the saliva of healthy persons; and generally it was found that in the case of weakly or diseased persons starchy food must be cooked twice or thrice as long as in the case of healthy persons in order that it might be equally acted upon. Again, when starch has been cooked for a long time there is less difference between the effect of healthy and unhealthy saliva upon it; this is specially remarkable in the case of millet—which, after one hour's cooking, showed a difference of 12.89 per cent. in favor of the saliva of healthy as against that of diseased persons, but after three hours' cooking a difference of 5.77 per cent. only.—*Lancet*, March 31, 1888.

The Medical News.

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OF MEDICAL SCIENCE.

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SATURDAY, APRIL 28, 1888.

YELLOW FEVER INOCULATONS.

Many recent bacteriological investigations have illustrated how sadly truth may suffer at the hands of incompetent, yet earnest, observers. Enthusiasm without judgment and observation without scientific training have been, and doubtless will continue to be reponsible for many errors, and it is unfortunate that a great part of the labor in any research is in separating the wheat from the chaff and determining just how much of the work done has been reliable.

The assertions and claims of Domingos Freire, of Rio Janeiro, that he had discovered not only the germ of, but a vaccine against, yellow fever, have naturally attracted special attention in this country, and we have, on several occasions within the past few years, noted the course of his investigations. The publication of his work on the disease enabled experts to determine how unsatisfactory were the methods which he followed, and the germ, *cryptococcus xanthogenicus*, which he described could not be classified with any known forms. More important by far, however, were his claims that he had found an efficient vaccine which had been tested in hundreds of cases. The interests involved were important enough to justify the President in sending Dr. Sternberg to investigate these methods, and we give in this issue the preliminary results of his studies as presented in a paper read before the College of Physicians of Philadelphia.

From the limited time allotted, Dr. Sternberg could not, unfortunately, secure any autopsies, and the chief value of his present investigation lies in the careful criticism and analyses of Freire's work. So far as we know, this has not before been attempted by any acknowledged expert. That Freire's claims have not stood the test will not surprise those acquainted with modern methods, and the extracts given in Dr. Sternberg's lecture suffice to show that his work lacks scientific precision, and is totally untrustworthy. It was quite possible that, missing the germ, he might still have discovered a protective virus, and the figures of successful vaccinations published within the past few years have given color to the belief that there was some truth in his statements. The figures presented, however, by Dr. Sternberg justify his conclusion that there is no satisfactory evidence that the method of inoculation has any prophylactic value. We have not the slightest doubt that in this opinion the leading bacteriologists of the world will concur.

Dr. Sternberg has been ordered to proceed to Havana for the further study of the disease, and we sincerely trust that with the elaborate and accurate methods now at command he may reach positive conclusions regarding this most formidable of tropical plagues.

BACTERIA IN THE URINE.

Though the influence of bacteriology in furthering the study of hygiene and pathology is manifest to all, it is evident that the hopes of clinical medicine have not been fulfilled to the extent anticipated by many in the earlier days of that science. Thus, so far as practical medicine is concerned, examination of the sputum for tubercle bacilli is about all that has been definitely gained.

It is slowly being learned that those hopes were based on false conceptions of the true nature and mode of action of the various morbific agents. A study of the results of the bacteriology of the urine is exceedingly instructive, for it not only shows us the possibilities and limitations of such investigations, but also renders more comprehensible some fundamental truths about infectious diseases.

Numerous experimental and clinical studies have been made in this field during the last few years, and in a valuable series of articles in the *Berliner klin. Wochenschrift*, Nos. 7, 8, and 9, 1888, Dr. H. Neumann, of Berlin, has published a critical analysis of the most important contributions of other writers, besides adding some observations of his own.

The valuable information furnished by the routine

examination of urine, led to the belief that with the aid of simpler means, such as we now possess, much practical information might be obtained as to the nature and course of infectious diseases by a bacterioscopic examination of the urine. This partial truth was based on a widely spread error. It was part of the belief that the atmosphere is "pregnant," as has been said by some, with germs; that these were constantly being swallowed or inhaled, taken into the circulation, and, like the urine salts, "sieved out" of the economy by the kidneys. As a deduction from this bizarre and unfounded idea, it was supposed that in microbic diseases the blood "swarmed" with the specific germs, and, arrived in the renal circulation, they were in turn "sieved out."

Among the first to show the erroneousness of these views was Leube, who found that the urine in health contained no bacteria. More recent observations by Lustgarten and Mannaberg, confirmed by Neumann, show that though this is true of urine in the bladder, the urethra always harbors germs which contaminate it more or less in passing. These bacteria, however, are few in number, and, with one exception, non-pathogenic. The exception is the staphylococcus aureus, and in investigations it can be excluded by the use of sterilized catheters.

Knowing that the urine in health is germ-free, it remains to be seen what changes, if any, occur during infectious disease. At the risk of causing some confusion, it is well to digress here, and consider first the modes of distribution of bacteria in the organism, premising that much of the information on that topic has been gained through studies of the urine.

We already know that in infectious diseases we have to distinguish between local and general infections. Thus in many diseases the germs not only penetrate by the most direct route to the organs concerned, but remain and vegetate there. So in Asiatic cholera, the spirilla remain in the intestine, and no matter how severe the infection, search for the germs in the circulation must be in vain.

Bacterial invasions of the general organism occur in various ways, but for the present purpose may be divided into three groups. In the first the bacteria cause a local infection, and then gain access in a more or less direct manner to the circulation. This has been proven in some cases in suppuration, pneumonia, tuberculosis, and erysipelas. In the second group a lesion is caused in the skin or mucous membrane, and through it an organism which was not the original cause of disease arrives in the circulation. This is a frequent accident in diphtheria, variola, and scarlatina, and in such cases the newcomer is usually a strepto- or staphylo-coccus. In the third group the bacteria course from the beginning in the circulation, or gain access to it at certain periods of the disease. This occurs in recurrent fever, endocarditis, sepsis, glanders, and typhoid fever.

A separate class under this group might include such rare cases as those in which an organism which usually causes only a local infection occurs in the circulation; such cases as those in which the diplococcus pneumoniæ of Fränkel caused meningitis or endocarditis. In such cases it would be fallacious, probably, to infer from an examination of the urine that a latent pneumonia was in progress.

Finally, all kinds of combinations and sequences of these groups may occur in the individual, so that at the same time typhoid bacilli and erysipelas cocci, for example, may be circulating together.

We are now in a position to examine the condition of the urine in cases of blood infection, and first to ascertain if the healthy kidney permits a passage to the bacteria. Notwithstanding many affirmative answers, both clinical and experimental evidence seem rather to deny such an occurrence. Thus, Kannenberg could find spirilla recurrens in urine only after hæmaturia had set in, and numerous culture experiments with the urine of typhoid patients have been negative, though if present the recovery would have been attended with no great difficulty.

A valuable fact that has been learned in this connection is that not all lesions of the kidney occurring in the course of infectious disease are bacterial. According to Neumann's results, severe albuminuria may occur in typhoid fever without bacilli appearing in the urine, and in cases of suppuration even acute nephritis developed with urine examinations negative. These lesions can be explained on the supposition that the excretion of ptomaines causes the nephritis, as Koch has shown possible in the case of the "cholera-kidney."

In order that bacteria be excreted from the kidneys it is necessary that they have accumulated in those organs in large numbers, as happens in glanders, typhoid fever, and pyæmic diseases. Embolism of small vessels or capillaries takes place and then changes occur in the surrounding tissue, varying with the nature of the infectious agent. These

changes are but little understood, though it is clear that multiple emboli, even when accompanied by necrosis and inflammatory foci, do not necessarily lead to inflammation of the whole organ and its corresponding phenomena. Thus, in osteomyelitis with bacteria and round-cells in the urine, albumin and casts were absent almost constantly. In typhoid fever, too, along with bacilli there is sometimes only temporary albuminuria, at others, casts and albumin in large amounts are present.

Existence of bacteriuria may in some cases be recognized without a microscopic examination. Thus, in typhoid fever and some other diseases the bacteria appear to increase in the bladder, the urine when passed appears cloudy and remains so after repeated filtration, and is usually less acid than normal.

The diagnostic importance of bacterioscopic examinations of the urine, aside from cases of primary bacterial nephritis, which we have purposely not considered, depends on the recognition of the time at which bacteriuria appears. On this point but little is known. The ability to show the existence of a "mixed infection" may assume greater clinical importance than it now has.

In typhoid fever, although these examinations have shown nothing positively new, they have confirmed some earlier ideas. Seitz and Neumann found typhoid bacilli in the urine in cases where the eruption was most intense, and they infer, with much ground, a relation between the number of foci of disease and eruption. As far as the diagnosis of typhoid is concerned we are not very sanguine, since there are few doubtful cases in which culture experiments could give the desired information before either the clinical course or autopsy decided the question. As the bacilli remain present in the urine for some time, the diagnosis of a case coming under observation at a late stage might be made from such an investigation.

For prognosis, the ability to discover a renal complication, or a secondary infection, may become very important.

An important practical conclusion may be drawn from the knowledge of the infectiousness of urine in many cases of typhoid fever, and that the source of danger may remain for many months.

Slight as are the clinical gains so far acquired in the lines thus indicated, it must be remembered that the whole subject is a new one, that we are just coming into possession of practical methods, and, bearing in mind the limitations we have made, there is reason to look for greater progress in the future.

On Tuesday evening, the Alumni and students of the Medical Department of the University of Pennsylvania gave a reception to Dr. D. Hayes Agnew, in commemoration of the fiftieth anniversary of his doctorate. Addresses were made by Provost Pepper, Dr. S. W. Gross, Mr. Lincoln (on behalf of the undergraduates), and Dr. Agnew. Subsequently a handsome collation was served. There was quite a large gathering, including a number of the Alumni from a distance. The Provost announced that the University authorities had determined to confer its highest academic honor upon Dr. Agnew at the ensuing commencement.

We are informed that the place of meeting of the American Gynecological Society has been changed to Washington, so as to conform to the meeting of the Congress of American Physicians and Surgeons in that city, on September 18th, 19th, and 20th.

We are in receipt of a circular from Mr. George S. Davis, publisher of the *Index Medicus*, stating that this periodical is not self-supporting and needs a larger measure of aid from the profession than it has yet attained to place it upon a permanent basis. This journal occupies a unique position as a means of research, and the best interests of the profession demand that it be sustained.

The appreciation of its value has extended to Europe, and recent foreign periodicals note with regret that it is in need of aid, and are united in expressions of its great value. We sincerely hope that the American profession will not incur the reproach of neglecting this most important instrument in the promotion of medical research, and we would especially urge every medical society in the country to subscribe for at least a single copy.

We are informed that a national association under the title of "The American Association of Obstetricians and Gynecologists," was formed at Buffalo, on April 19th. It is to be composed of obstetricians and gynecologists, and those surgeons who are interested in the abdominal surgery connected with those specialties. The list of foundation members numbers thirty-four, and includes men from all parts of the country. The initiative meeting was held at the Niagara House, seventeen members being present. The business consisted of the adoption of a Consti-

tution and By-Laws, the election of officers, and the appointment of the place of the annual meeting.

The officers elected were as follows:

President.—W. H. Taylor, M.D., of Cincinnati.

Vice-Presidents.—Drs. E. E. Montgomery, of Philadelphia, and J. H. Carstens, of Detroit.

Secretary.—W. W. Potter, M.D., of Buffalo.

Treasurer.—X. O. Werder, M.D., of Pittsburg.

Executive Council.—Drs. Thomas Opie, of Baltimore; J. H. Etheridge, of Chicago; C. Cushing, of San Francisco; Melancthon Storrs, of Hartford; and Byron Stanton, of Cincinnati.

Delegate to the Congress of Physicians and Surgeons.—James P. Boyd, M.D., of Albany.

Alternate.—Hampton E. Hill, M.D., of Saco, Me.

Place of meeting, Washington, D. C., September 18 to 20, 1888, during the session of the Congress.

During the day the new Association became the guest of the Buffalo Obstetrical Society at a luncheon. The meeting is said to have been a most successful one, and it is the opinion of its founders that the Association is strong, and destined to be a working body, and take high rank among the societies of America.

The Seventh International Congress of Chemistry and Pharmacy will meet at Milan in September, 1888.

Surgeon-General Moore, of the Army, and Surgeon-General Browne, of the Navy, were entertained at dinner at the University Club last Saturday evening by the Practitioners' Society of New York City.

The Society of Apothecaries of London have determined to permit female students of medicine to come up for examination. A movement is on foot to organize a "Ladies' University."

Dr. Edward C. W. O'Brien, of Buffalo, has been nominated by the Governor of the State of New York for the office of Health Officer of the Port of New York.

The country practitioner of Great Britain is threatened with a horse-tax of five dollars for each animal he uses. As he is already the subject of a levy upon his carriages, in about an equal sum, this threatened imposition is highly unpopular with a profession which believes itself to be already overburdened.

Smallpox was exported from New York City to the Clyde, on the "Circassia," arriving out March 22d. There were five cases, all among the crew. The sick were removed to Greenock Hospital; vaccination and fumigation were thoroughly performed. The steamer was then allowed to proceed to Glasgow. No subsequent cases have been heard from.

SOCIETY PROCEEDINGS.

NEW YORK COUNTY MEDICAL ASSOCIATION.

Stated Meeting, April 16, 1888.

The President, J. R. MacGregor, M.D., in the Chair.

Dr. Joseph E. Janvrin read a paper on

THE PRIMARY REMOVAL BY ABDOMINAL SECTION OF THE TUBE AND ITS CONTAINED FŒTUS IN CASES IN WHICH PREGNANCY HAS BEEN DIAGNOSED, BEFORE RUPTURE OF ANY PORTION OF THE TUBE HAS OCCURRED.

The operation referred to, he said, was one performed with the expectation of delivering the tube and its contained fœtus intact, and done before the end of the fourth month of gestation. In a paper read by him before the American Gynecological Society, in 1886, he had advocated early laparotomy, as a rule, in cases of tubal pregnancy in which hemorrhage had occurred (instead of resorting to the use of electricity), thus removing all possible danger of further hemorrhage. In December of that year he reported, at a meeting of the New York Obstetrical Society, a case in which he had diagnosed tubal pregnancy at the fifth week, and in which death had occurred at the end of the seventh week from a second hemorrhage from a ruptured artery on the peritoneal surface of the sac; the first hemorrhage, which was extremely small, having occurred from this same artery some days previously, and galvanism having in the meantime been employed to destroy the fœtus.

At that time, he said, he was convinced from this case, and from three other similar cases, that the time to operate was when preliminary or partial rupture occurred, as indicated by the first hemorrhage; the primary collapse symptoms constituting an almost certain indication both of the pathological condition and of the need of immediate interference. In speaking of the symptoms of tubal pregnancy, he had stated that he believed it was easier to recognize this condition than a case of hydrosalpinx, and that the presence of an irregular decidual discharge in a woman who had missed a period, associated with the normal signs of pregnancy, and an enlarging, fluctuating, and exquisitely sensitive mass on one side of the uterus, and followed subsequently by symptoms of shock, could hardly be referred to any other condition even as early as the fifth week. In a case of this kind he had also said that he would certainly perform laparotomy whenever the first symptoms of internal hemorrhage occurred.

Again, in a discussion at the January meeting of the Obstetrical Section of the New York Academy of Medicine, in 1887, he had stated that in any case in which from the rational and physical symptoms he became convinced that tubal pregnancy was present, even

before symptoms of a rupture of the peritoneal covering of the tube occurred, he would most earnestly urge laparotomy, and perform it if he could obtain the consent of the patient.

Dr. Janvrin then went on to say that up to the present time he had been able to find but one case on record in which the operation was performed prior to a laceration, or partial laceration, of the tube, and before the fourth month of gestation. This was one reported by Dr. Joseph Price, of Philadelphia, in the *Annals of Gynecology* (Boston), for March, 1888, and in a recent letter to Dr. Janvrin, Dr. Price had said concerning it: "The history was simply that of delayed bleeding two weeks, and constant pain and nausea. I operated for extra-uterine pregnancy or pus tube." He next referred to cases of laparotomy performed in tubal pregnancy, after one or more decided hemorrhages, reported by Lawson Tait, Martin, of Berlin, and others in Europe; and by Drs. A. W. Johnstone, of Danville, Ky.; Joseph Price, of Philadelphia; S. C. Gordon, of Portland, Maine; Wm. Gardner, of Montreal; G. M. Tuttle, of New York; and Charles B. Penrose, of Philadelphia.

All such operations, performed after there had been a rupture of some part of the tube, he thought should be classed as *secondary* operations. So far as he knew, the credit of first advocating the propriety of performing abdominal section and removing the ruptured tube with the fœtus and blood-clots, was due to an American surgeon, the late Dr. Stephen Rogers, of New York, who, as long ago as 1867, urged the claims of this operation in such cases.

The advisability of enlarging this field, and removing the tube with its contained fœtus before rupture has occurred, and during the early weeks of gestation (instead of employing electricity for the purpose of destroying the life of the fœtus), Dr. Janvrin said he had advocated on every possible occasion during the past year and a half. Until very recently he believed that he stood almost, if not quite, alone on this point; but during the last few weeks he had found that other gynecologists also had come to the same conclusion. Thus, in the *American Journal of Obstetrics*, for April, 1888, Mr. Lawson Tait said that, although he had never as yet been called upon to operate until after the sac had ruptured, if in any instance there was a reasonable supposition that there was a tubal pregnancy which had not yet ruptured, he should recommend immediate operation. Drs. Joseph Price and Howard A. Kelly, of Philadelphia, he believed were also in accord with this proposition. In a recent letter to Dr. Janvrin, Dr. Kelly said: "The history of fœtuses which have been destroyed by faradization has frequently been associated with protracted suffering to the mother, and with conditions of chronic invalidism."

Dr. R. P. Harris, of Philadelphia, in the *American Journal of Obstetrics* for August, 1886, referred to several cases in which attacks of peritonitis have occurred (where the fœtus had been killed by electricity) several years subsequent to the death of the fœtus, and due to its presence in the abdominal cavity. Mr. Tait also has very recently (*American Journal of Obstetrics* for April, 1888) pointed out the danger of the placenta going on developing enormously after the fœtus had died from natural causes.

Up to the present time, however, the weight of opinion among American gynecologists is decidedly in favor of destroying the fœtus by electricity in some form, in cases in which a diagnosis has been made prior to the fifth month of gestation, and in which there has been no decided hemorrhage from the sac wall. Among the advocates of this measure stand Thomas, Garrigues, Lusk, Mundé and others, of New York, and M. D. Mann, of Buffalo, and each of these, as well as others throughout the country, have had excellent results with it. In the *Annals of Gynecology* for February, 1888, Dr. Mann stated that Dr. Janvrin was able to find only three cases in literature, including his own, where rupture of a vessel caused death without rupture of the sac. Since the publication of his paper before the American Gynecological Society in 1886, however, he had seen another case in which this condition was fully demonstrated at the autopsy. Two other important specimens he had recently seen in cases in which abdominal section was performed. In one of these the fœtus had died, from pressure of blood-clots, at about the end of the third month, and several other attacks of hemorrhage had occurred between this date and the seventh month, when the tube, fœtus, clots, etc., were removed. In the second case, where laparotomy was performed at the seventh or eighth week, there was a history of slight hemorrhage from the sac wall and slight peritonitis for a week or ten days prior to its removal.

In the paper before referred to, Dr. Mann, of Buffalo, had expressed the opinion that if rupture has not occurred electricity should always take the precedence of laparotomy. To this proposition Dr. Janvrin said he would assent, provided an experienced laparotomist could not be found to operate, but not otherwise. With a capable operator at command, he would urge abdominal section just as soon as the diagnosis has been made, and before any hemorrhage from the sac, with its subsequent attacks of peritonitis, could take place. These frequently recurring attacks of slight hemorrhage are exceedingly dangerous to the life of the mother, and when they have occurred, and the time comes when laparotomy *must* be performed, the patient is in bad condition for operation, while the procedure itself is much more complicated than at an earlier period. The same could be said in reference to waiting to perform laparotomy until serious symptoms have supervened, after the fœtus has been killed by electricity. Here, too, there will be more or less adhesions to deal with, and the work to be done will be much more complicated than the removal of a simply enlarged and still unruptured tube containing the fœtus, with no products of inflammatory processes to interfere with its easy extraction.

Dr. W. T. Lusk said that he wished he could be convinced by the arguments advanced in the paper, that the time had come for the doing away with galvanism in the treatment of tubal pregnancy. It would certainly be very gratifying if one could always perform laparotomy as soon as this condition was diagnosticated, as the operator would thus secure any amount of *éclat* which is not possible when electricity is employed. Destruction of the fœtus by the latter is a far less brilliant method of procedure, and when it is attended with successful results the medical attendant is not infrequently subjected to insinuations that extrauterine pregnancy has never existed at all. At the same time he was so thoroughly convinced that these cases can be efficiently and safely treated with galvanism after the

appearance of the characteristic colicky pains, that he did not as yet feel justified in abandoning so satisfactory a method. The operation is a very simple one, requiring no special skill, so that it can be practised by any one, and, as a rule, the results are all that could be desired.

Dr. Lusk went on to say that he had had two of his cases, occurring in private practice, under observation for a long period, one of them for six years, and the other for four years. At the time the first of these patients was operated on it was thought that she was dying. After consultation with Dr. Thomas it was decided to employ electricity, and the result had been entirely satisfactory. There had never been the slightest bad effect, and at the present time the mass remaining was about the size of a pigeon's egg. In the second case, in which there had been the colicky pains and other usual signs of tubal pregnancy, the tumor was now about the size of an English walnut. Since the operation the patient had given birth to a living child, and there had been no trouble whatever at the time it was born.

Now, if we have such an efficient method which is perfectly safe in the great majority of instances, he could see no good reason for giving it up. Even if inflammation, suppuration, or ulceration should ensue, we can usually perform laparotomy then with satisfactory results. He was, therefore, convinced that in the present state of our knowledge this is the best plan of proceeding. As to performing laparotomy after rupture of any portion of the tube has occurred, the difficulty of diagnosis at this time is exceedingly great, and Lawson Tait had told him personally that he did not feel able to make it; or, at least, this was what Dr. Lusk understood him to say.

In regard to the other five cases which he had treated with electricity, he could not speak with the same confidence as of the two just mentioned. The results were satisfactory at the time, but as the women were hospital patients, he had not been able to follow up their subsequent history. If he could be convinced that laparotomy is just as safe as electricity, he should certainly join the ranks of those who advocate this procedure. As to the danger of the growth of the placenta after the fœtus had been destroyed, this seemed to him to be very slight, and he questioned very much whether such a danger really exists at all.

DR. GEORGE T. HARRISON said that his experience with galvanism had been very favorable. He had certainly destroyed the fœtus by this means in three cases. He had examined one of these patients two years after the operation, and had found the sac much shrunken. Since then the woman had given birth to a child in a normal manner. There had also been no evil results in his other cases. Notwithstanding this, however, he thought the experience of the profession is at present too limited to enable us to arrive at any definite conclusions, and the teaching of modern gynecology is undoubtedly to advance in the line indicated by Dr. Janvrin.

The results obtained by some of the German operators especially, have been such as to have great weight in convincing him of the practicability of laparotomy in this connection. Still, at the present time he was not quite willing to declare himself in favor of the general adoption of the procedure in this class of cases. The statement of Dr. Janvrin in regard to the constant occurrence of extreme sensitiveness in the tumor of tubal pregnancy he thought should be somewhat modified, as he had observed instances in which this was not present.

DR. ANDREW F. CURRIER said that such remarks as he had to make on this subject were largely theoretical in character. After a careful consideration of the matter it had seemed to him that it was one of the inconsistencies of modern gynecology, that while the abdomen is constantly being opened for the removal of tumors which may be doing the patient no injury, operators should refuse to do the same for the relief of a condition which, if uninterfered with, is absolutely sure to prove fatal, and should leave the case to the uncertainties of a method like electricity; although in many cases, perhaps most cases, the latter has proved successful. Men, he thought, are apt to be influenced by their surroundings, and if some of those who are the strongest advocates of electricity had met with a fatal result in any of their cases, they would not, perhaps, be so enthusiastic in its favor. Several years ago the late Professor White, of Buffalo, had advanced the proposition (which he thought was a very sound one), that whenever there is in the abdomen an extraneous body which is liable to cause fatal results, the proper surgical course is to open the abdominal cavity and remove it. Again, the possibility of the subsequent growth of parts connected with the fœtus ought not to be ignored, since such men as Tait and Knowsley Thornton have spoken of it as a very serious danger.

When gynecologists perform laparotomy so frequently for ordinary pyosalpinx or hydrosalpinx, why should they hesitate to open the abdomen for so grave a condition as tubal pregnancy? Probably the reason why this matter has not attracted more attention than it has, is because these cases are so seldom seen. If this were the case, it showed the importance of manfully warning those who were to become family practitioners, as well as those who were to become mothers, of the dangers of such an accident, and the necessity for the early recognition of the condition. So far as he was aware, but little attention is paid to the subject in the medical schools.

A. PALMER DUDLEY said that the all-important point seemed to him to be the matter of diagnosis, and he should very much like to know how to make the diagnosis. Even Mr. Tait, according to Dr. Lusk, had confessed his inability to do this before rupture had taken place. If the diagnosis be once established, the treatment is sufficiently easy, whether electricity or laparotomy is resorted to. Under the circumstances referred to by Dr. Janvrin, laparotomy is a comparatively simple operation, and no more dangerous than when it is done for hydro- or pyo-salpinx.

Dr. Dudley then related a case which, he said, showed the difficulty of making a correct diagnosis. The patient was a married woman of seventeen, who was irregular in her monthly periods. She had already had one child. The cervix uteri was soft, and she suffered from nausea and vomiting. There was a pulsating soft tumor, extremely sensitive to the touch, which Dr. Dudley thought was probably due to tubal pregnancy. He proposed laparotomy, but this was opposed, and the patient passed from observation. Two months afterward she returned to the hospital clinic, still suffering from nausea and vomiting, and this time she consented to the operation. This was performed two weeks ago. On opening the abdominal cavity he found pyosalpinx on the

right side, while the tube was twisted around so that its fimbriated extremity was attached to the bladder, behind which the ovary was lodged. The fimbriated extremity of the other tube was attached to the rectum, while under the pyosalpinx was a parovarian cyst. There was a frightful hemorrhage during the operation, but the patient is now recovering. Here, then, was a condition other than tubal pregnancy giving rise to the symptoms mentioned by Dr. Janvrin. In conclusion he said that he would not hesitate to resort to laparotomy early if he was able to make the diagnosis of tubal pregnancy.

Dr. Lusk said that in considering laparotomy in connection with pyo- or hydro-salpinx and with tubal pregnancy, we must remember that there is this difference, that while the former conditions cannot be removed by electricity, it is, as a rule, quite possible to put an end to tubal pregnancy by this means. If this were practicable in the case of pyosalpinx also, we would not resort to laparotomy until after electricity had been tried. He then spoke of the importance of arriving at a correct diagnosis in many cases, of making a thorough examination of the patient under ether, and referred to two cases in his own experience illustrating this point.

Dr. Dudley stated in reply to a question by Dr. Janvrin that in the case which he had related he had not observed an irregular decidual discharge.

Dr. Janvrin said that he regarded this as the most important point in the diagnosis of tubal pregnancy. If the symptoms which he had mentioned (leaving out those of shock, which is due to rupture) were noted in any case, he thought there would be no difficulty in making out the diagnosis before rupture of any portion of the tube had occurred. These, it should be remembered, are the presence of an irregular decidual discharge in a woman who has missed a period, associated with the normal signs of pregnancy and an enlarging, fluctuating, and exquisitely sensitive mass on one side of the uterus.

Dr. Lusk had stated that after the employment of electricity there is very little danger of ulceration and other bad effects. This is no doubt true, as a rule, but certain cases have been reported in which it was followed by evil results. Thus, Dr. Mann has published in the article referred to in the *Annals of Gynecology*, two such cases after the use of galvanism. As to Mr. Tait's views on the diagnosis of tubal pregnancy before rupture, in the very last number of the *American Journal of Obstetrics* (April, 1888) he stated that he had never been able to make the diagnosis at this time because he had never been called in any case until after rupture had occurred. The German cases referred to by Dr. Harrison were all secondary operations, and, so far as he was aware, the only primary operation which had as yet ever been performed was that of Dr. Joseph Price, of Philadelphia, which was done in September last.

THIRD FRENCH CONGRESS OF SURGERY.

Held in Paris from March 12 to 17, 1888.

(Specially reported for The Medical News.)

(Continued from page 446.)

EXCISION OF THE WRIST FOR ANKYLOSIS.

Dr. Ollier, of Lyons, reported two excisions of the wrist for ankylosis. These operations would never have been undertaken, he said, had the antiseptic methods not been used, and a sufficient functional restitution of the part assured. It would not have been accepted a few years ago, when ankylosis was the ideal result sought for in excisions. Langenbeck had tried it twice, but in one case he had pyæmia and in the other a return of the ankylosis.

At the present time, after the excision of the carpus in an isolated manner or associated with that of the metacarpal or ulnar-radial extremities, one can obtain excellent functional results, far superior to those obtained by Lister in 1865, which, however, showed already at that time a marked improvement. One of the most important results obtainable is a joint movable by communicated movements, and also self-moving; we arrive at that by respecting the motor-tendons of the wrist, radial and ulnar, which were formerly sacrificed. Of course, the articulation has not its normal freedom, but it will have movements of at least 40 to 45 degrees, which is quite sufficient for the ordinary use of the wrist. Having seen, four or five years later, two autopsies of resected patients, he found between the extremities excised an osteo-fibrous cushion with synovial interstices, giving a good functional condition to the articulation.

The possibility of writing is not a good test, for one with stiff fingers can do this; all his patients can hold their arms out with a weight of 10, 24, and 36 pounds while moving their wrists, the movements of abduction and adduction of the thumb are also well restored. In cases of ankylosis the operation is always a delicate one, especially when the wrist is S-formed. The carpal bones must then literally be carved with the chisel and mallet with great care not to wound any arterial or nervous trunk. In rheumatic patients, on account of a certain degree of tendinous ankylosis, one must take a good portion of the bone away. The operation, if the trouble is not accompanied by tuberculous lesions, must also be absolutely without subsequent fever. The first case he operated upon was a young woman who had already a double osseous ankylosis of the elbow, and he excised the carpus and about one-third of an inch of the bones of the forearm to allow her to play her piano, which she now does very readily. His second case was of ankylosis giving a bad position to the hand, rendering it absolutely useless. The functional result obtained is a perfect one.

EXTIRPATION OF THE LARYNX FOR CARCINOMA.

Dr. Demons, of Bordeaux, did not think that on account of its difficulties and the rapid return of the disease, if the patient does not die from the operation, this operation ought to be disregarded. He reported two cases. The first case, man, aged forty-four years, had presented for one year signs of cancer of the larynx. He had an epithelioma which started at the epiglottis, then invaded the base of the tongue and the pharyngeal wall with bilateral glandular swellings. Tracheotomy had been performed, and the patient asked for a radical operation. He first took away, by a transverse incision below the level of the hyoid bone, the epiglottis and the base of the tongue, then by a median vertical incision, the left lateral half of the larynx. At the end of nine months the disease returned at the base of the tongue. The second case, man, aged fifty-seven years, had had for one year laryngeal symptoms, and presented a limited

epithelioma on the right vocal cord. This operation he made last May. The epithelioma was found limited to the larynx without any lesions of the cartilages or lymphatic glands. He first made a transverse incision below the hyoid bone from the middle of which he started a vertical incision down to the larynx. He incised the thyroid cartilage vertically and finding the left side also slightly involved, he extirpated the whole larynx. A month later the patient was cured, and for ten months has felt perfectly well, and there is no sign of the return of the trouble. The diagnosis was confirmed by the microscope. He concluded, that if the affection takes a rapid course we should refuse to operate, but, if, on the contrary, the disease is limited, we should not hesitate to use the knife.

DR. DUPONT, of Lausanne, drew attention to a modification of the operation. The principal danger of the operation being the introduction of blood into the air passages, the Trendelenburg canula is used by some operators. He separates the trachea from the œsophagus and brings it forward, fixing it at the inferior angle of the wound. In that manner the trachea is no longer in the direction of the inferior extremity of the larynx, and the blood falls behind it.

DR. MOLLIÈRE, of Lyons, had extirpated the larynx in a man of sixty-eight years, for an epithelioma of the arytenoid region. He excised the posterior one-third of the larynx and the greater part of one of the vocal cords, which he then tried to restore by sutures. He then finished by suturing the epiglottis to the cutaneous wound. To prevent the passage of food into the larynx, Trendelenburg's canula was used with good success, and was left ten days in the wound, until it was cicatrized. It has been much better borne than the ordinary canula on account of its not moving and being elastic. The patient was nourished with the œsophageal sound for two days and ate alone on the third day. He left the hospital at the end of one month.

WHAT TO DO IN GUNSHOT WOUNDS OF THE VISCERAL CAVITIES.

DR. CHAUVEL, of Paris, said that on this subject the profession is divided into two camps: the temporization party and the intervention party; but the introduction of antiseptic surgery ought to modify the old views. In the cranium and chest the infection of the wounds of the serous cavities can only come from the exterior; in the abdomen it comes from the wounding of the abdominal organs, which pour their products into the peritoneum. For the past hundred years immediate intervention has been defended by Thomassin, Dufouart, Baudens, Legouest, Otis, etc., but their precepts were not followed. In France the opinions are varied, the abstentionists are represented by Professors Tillaux and Vernenil; the moderate interventionists by Professors Trelat and Reclus, who operate as soon as signs of peritonitis appear, and indicate a peritoneal effusion of some kind; to these later views adhere also MM. Bouilly and Le Fort.

Hamilton and MacCormac recommend immediate laparotomy, and he adheres to these later views. He thought that any wound of the abdomen should be followed by an immediate enlarging of the wound, exploration of the parts, etc. Gunshot wounds are almost always mortal, if we rely on expectation. Dr. Nimier in his statistics had found the mortality to be variable; in certain cases ninety-five per cent. die, while others lose about ten to fifteen per cent. He has collected five thousand and three cases, the mortality of which was eighty per cent. In gunshot wounds of viscera, the line followed by the bullet is always a direct one, and the wounds are always according to a direct line from the wound of inlet to the one of outlet.

Intestinal movements may produce a slight deviation from this line, but not a considerable one; this enables us to find out more easily the injuries sustained.

At the beginning the two pathognomonic signs are very obscure, the appearance of the intestinal contents at the wound and visceral hernias are rare; still, one cannot await the general symptoms. Death usually occurs by hemorrhage or by septic peritonitis. The hemorrhage may be due to a large vessel or again to the tearing of small arterioles. Septic peritonitis is the result of the presence of intestinal matters in the peritoneum. Hemorrhage and peritonitis being the principal causes of death, is it not natural that these should be prevented by the ligature of the wounded vessel, and by the cleaning out of septic matter?

Out of forty-one cases of laparotomy for gunshot wounds of the abdomen by small bullets since 1880, one finds twelve cures and twenty-nine deaths. If one should eliminate the cases in which the operation had been undertaken too late, the proportion of cures would be much greater.

The washing out of the peritoneum, proposed by Nimier, cannot replace laparotomy. This operation must be done in the median line, and as rapidly as possible. The extraction of foreign bodies, ligature of vessels, suture of intestine before or after excision of the same, the washing out of the cavity, the extirpation of certain organs, will be practised by incision in the median line. Finally the medical treatment: absolute rest, opium, fasting, will help the surgeon. One must then reject systematic expectation, and operate immediately.

DR. E. DE LORME, of Paris, said that direct surgical intervention in intestinal wounds by gunshot is a very rational operation, but practically immediate intervention for gunshot wounds of the abdomen on the battlefield is not at all to be recommended. These operations could only be undertaken in fixed ambulances which are not obliged to follow the army.

The principal contraindications are: 1. The wounds produced by voluminous pieces of shell, which produce very extensive damage which can hardly be remedied by surgical aid. 2. The multiplicity of the wounds of the small intestine by bullets which penetrate the abdomen; still this is a less serious objection on account of the progress made in intestinal suture. From a series of experiments on cadavers, he has found that in transverse perforations of the intestine the intestinal lesions are much more numerous than in antero-posterior perforations. 3. When the bullet has a very great speed, the frequent extension of the lesions contributes to an unfavorable prognosis, and renders less certain direct intervention.

Gunshot wounds of the abdomen in a campaign are in a bad condition for laparotomy. The operation cannot be performed in the field ambulance, and when the wounded are admitted to a permanent hospital it is too late.

DR. PONCET, of Paris, said that in the time of Larrey cannon balls were round, and would produce by rub-

bing against the abdomen severe bloody effusions in the abdominal cavity. Later, in 1855, the explosive shells produced contusions without ecchymosis of the parietes, but intestinal lesions. He had seen during the siege of Strasburg, cases in which contusion of the abdomen produced by large pieces of shell would only present symptoms of intestinal perforations by sloughing at the end of the seventh or eighth day. Formerly the shells were made to explode according to certain lines, indicated by weak points at the time of the manufacture of the shell; but one of the shells in present use will explode in four or five hundred pieces; in addition we have the metallic dust which accompanies such explosions, and which is capable of penetrating the tissues to the depth of four inches. These are only the effects of our cast-iron shells. But what will the wounds be produced by steel shells; they are still more dangerous and produce terrific wounds. All the splinters of the shell are each like a knife cutting on both sides, which are thrown on the human body with such force that they are found at three hundred and fifty yards behind, or nine hundred and fifty yards in front of the point of explosion, and so hot that they cannot be touched. Such are the shells which will produce the wounds of the next war; as to say what kind of wounds they will be and what to do, we must wait experience. In every case of immediate perforation laparotomy ought to be performed, and suture and excision of the intestine made. If there is a consecutive perforation after elimination of a suture, a secondary laparotomy will have to be performed.

Dr. Reclus, of Paris, said that American and English English surgeons whenever they find themselves in the presence of a perforating wound of the abdomen produced by a revolver, make an immediate laparotomy. For them intestinal perforation is a necessity to a perforating wound, and death is inevitable if an intestinal wound is left to nature. He accepted the first proposition, for in only one case out of thirty-seven had he seen a gunshot wound of the abdomen not followed by perforation of the intestine. But he did not admit the second proposition that perforation of the intestine always causes death. This opinion has been established in two ways: 1. The confusion which has been established between revolver wounds and those produced by war rifles, which last are much more dangerous. 2. The results of experiments on dogs. All the animals on which Parkes experimented died. But the dog is not in the same condition as man, on account of the shortness of the intestinal canal, and of the relatively larger size for him of a revolver ball, which are all conditions favorable to an escape of the intestinal matters into the peritoneum. 3. Maintaining in cases of abdominal wounds terminating by cure that there did not exist any intestinal wound, cure in these conditions is, however, frequent enough. He could collect more than one hundred such cases where the perforation had been recognized by the usual symptoms: fecal matter coming out of the wound, immediate hematemesis, melæna, or early expulsion of the ball by the anus.

Three principal causes bring on death in abdominal gunshot wounds: hemorrhage from a large vessel, shock, and peritonitis from effusion of intestinal matter. Against the first two very little can be done; against the third, much more frequent, intervention is not always necessary. Nature will prevent, in several ways, the intestinal contents from being effused in the peritoneum: 1. By the formation of a mucous obturator which closes the perforation. He has verified this fact in his experiments on dogs. 2. By a peculiar way, the simple contraction of the muscular coat, which will close the opening. 3. The most common, by the rapid formation of adhesions with a neighboring intestine or with the parietal peritoneum. In these abdominal wounds he acts according to the following rules.

1. Strong compression of the abdomen, as after laparotomy, to prevent an effusion of intestinal matter or blood into the peritoneum.

3. Opium, and absolute fasting, giving only every quarter of an hour a little iced milk to allay thirst.

3. It is only then, when these precautions have failed, that laparotomy should be resorted to.

Dr. Trelat, of Paris, was absolutely opposed to the two doctrines, 1st, the absolute operative abstention, which is condemned by six or seven examples of certain cures due to intervention; 2d, the expectation, until sure signs of peritonitis have set in. He thinks laparotomy necessary as soon as there are signs of stercoraceous effusion. These phenomena may be immediate or only appear later, but as soon as there is the least sign of peritonitis, he would not hesitate to operate. The medical treatment recommended by M. Reclus is advantageous, but must not be entirely relied upon.

Dr. Labbé, of Paris, recorded a case of a man, of twenty-nine years, alcoholic and addicted to morphia, who shot himself in the abdomen with a revolver-ball, size ⅓ of an inch, directed from above downward. He saw him two hours later, with hardly any pulse, cold, having had already several fainting-spells, and appeared lost. A few injections of ether restored him, however, somewhat, and he having shot himself in the country it was necessary to take him to Paris, about three miles, where he arrived about six hours after the accident, his temperature 96° F., no immediate intervention could be thought of. During the night he had violent pains, green vomiting, temperature raised. In the morning slight tympanites indicated peritonitis. He operated upon him fourteen hours after the accident. On incising the abdominal wall about three pints of blood escaped; and on examining the small intestine he found about the middle of the ileum four double perforations very near to each other, and above them a fifth one; in addition the mesentery was perforated, and was the source of the hemorrhage. The intestines were closed by Lembert sutures, the peritoneum washed out with sponges and great quantities of boiled water, and the abdomen closed. Operation lasted one hour and ten minutes. After the operation the patient became warmer, but died in twenty hours. This indicates in such cases immediate intervention, for in fourteen hours the peritoneum had had time to become red and have exudations on its surface.

Dr. Nimier, of Paris, said that from the study of gunshot wounds of the cranial cavity, during the Tonkin War, he found that most of the deaths were caused by the irritation of the cerebrum by the ball, the blood, bony splinters, etc., or by infection of the wound. Cure had especially been obtained in those cases where an early intervention had suppressed these inflammatory causes. He recommended in cases of gunshot wounds of the cranium: To shave and clean the cranium; to cut away the bruised lips of the wound; to enlarge it, if necessary,

to elevate the bone or take away the bony splinters; take away the foreign bodies, or the apparent missiles; work with an antiseptic solution, then dress with an occlusive antiseptic dressing. If there exists a hernia of the cerebrum, as in one of our wounded who was cured, the surgeon must apply a slightly compressive bandage. If the ball is lost in the cranial cavity, some symptom may indicate its location; intervention becomes then a matter of diagnostic science or pluck. In case of meningo-encephalitis the surgeons who have an opportunity might try the opening of the serous cavity, and the antiseptic irrigation of the same.

SPONTANEOUS HEMATOMA OF THE ORBIT.

Dr. Panas, of Paris, last January examined a boy, four years old, habitually healthy, except that he suffered from repeated epistaxis, and presented in the left orbicular region, upper and external part, a lobulated tumor, which had pushed the eye out, downward and inward. Ophthalmoscopic examination showed that the optic papilla was white and diffuse, while the luminous perception was nil. The orbital tumor presented a certain fluctuation, and punctures brought out black and clotted blood; it was a pure hematoma. It was only after four months that the superior region of the orbit began to disappear gradually, but one of the important symptoms exhibited was very serious dyspeptic troubles, real indigestion, accompanied every time by epistaxis; and this dyspeptic phenomenon even went as far as vomiting. Considering the general condition of the patient, we find him too stout for his age, that he is a dyspeptic, and a fatty dyspeptic. He thinks that this orbital hematoma is connected with the dilatation of the stomach; it is well known that congestion or hemorrhage is very common in stout dyspeptics. Is there here a phenomenon of reflex hemorrhage of the order of vaso-paralytic manifestations?

ON CHOLECYSTECTOMIES.

Dr. Thiriar, of Brussels, said that at the first session of this Congress he presented three cases of ablation of the biliary vesicles; his three patients are still well today, and have had no return of hepatic colic. In July, 1887, in a lady aged thirty, he extirpated the biliary vesicle. She had suffered for six years from terrible hepatic colics, which nothing could relieve. The vesicle contained no calculi, was enclosed by the liver and duodenum, to which it adhered firmly. The dissection was a difficult one, as in certain parts the duodenum was deprived of its serous tissue. Finally, the vesicle was extirpated. The cure was rapid, and the patient has had no return of the trouble.

Out of 6 cases of cholecystotomies by Spencer Wells's methods, there have been 3 deaths, 50 per cent., and one return of the trouble; out of 72 cases of ordinary cholecystotomies—that is, with suture of the biliary vesicles on the abdominal walls—13 deaths, or 18.05 per cent.; 59 operated upon have survived. There has been one return, and it had a persistent fistula. We had, then, 53 radical cures, which gave 48.6 per cent. of complete cures.

We know of 22 cases of cystectomies with 3 deaths after the operation, which makes 13.65 per cent. Of these 3 failures, one is attributed to a cerebral tumor; the second was a perforation of the cystic canal by a calculus. In the third case there were two calculi in the ductus communis choledochus, one was pushed back, the other crushed, according to Lawson Tait's method.

Cholecystectomy gives us, then, leaving the first case out, a mortality of 9.98 per cent., and all the operated patients were cured. In accordance with these results he thinks we must interfere without hesitation. The biliary vesicle is of no use in the economy, it can be extirpated without inconvenience, and if we could demonstrate the existence of a painful cholecystitis, or irritable vesicle, as we have painful cystitis and irritable cystitis, the indications of cholecystectomies could be very much extended, one would have to resort to it in all painful crises having for their origin an irritable biliary vesicle.

OBITUARY.

CORNELIUS REA AGNEW, M.D., LL.D.

The profession in New York was very much startled on Monday, April 8th, to learn that Dr. Agnew had gone home from a consultation with serious abdominal symptoms. These soon developed into what appeared and proved to be general septic peritonitis.

Dr. Agnew had generally been in excellent health; he had always taken wise and good care of his physical system. He came of a long-lived family; he was not fifty-eight years old when he died, his birthday being August 8, 1830. His appearance of excellent bodily and mental preservation had given his friends reason to think that he would live out his days, and fill to the full the measure of his useful and distinguished life. But he succumbed, after an illness of eight days, to a disease that probably originated in the appendix vermiformis, for while no foreign body was found, impacted feces and perforation and peritonitis started from this point.

Dr. Agnew was born in New York City, and was graduated in the arts from a New York college, in medicine from the College of Physicians and Surgeons, after which he served the full terms of assistant and resident in the New York Hospital. His educational lineage was of the best type. He began practice as a general practitioner, with a strong leaning to surgery. At one time he was talked of as attending surgeon to the hospital where he was educated. He soon, however, devoted his entire professional energies to the care of diseases of the eye and ear, for which he had especially fitted himself by study in Paris under Sichel and Desmarres, in London under Bowman, and in Dublin with Sir William Wilde. He never became a narrow specialist, and to the end of his days he would have been a competent general practitioner, so wide were his experience and his studies.

His special work in diseases of the eye was begun in the New York Eye and Ear Infirmary in 1855. He resigned this position in 1864. His services in connection with Van Buren, Gibbs, and Bellows, in establishing and carrying on the Sanitary Commission during the Civil War, are a part of our national history. He was one of the founders of the Union League Club of New York, and an honorary member of it at the time of his death. He was chiefly instrumental in establishing the Brooklyn Eye and Ear Hospital in 1869. By his influence such citizens as S. B. Chittenden and H. B. Claflin were induced to found and finally to endow this charity.

In 1869, in connection with Drs. Loring and Roosa, he engaged the interest of prominent and wealthy citizens

of New York, so that the Manhattan Eye and Ear Hospital was established in a dwelling-house hired for the purpose. Through Dr. Agnew's untiring and skilful efforts this institution was also permanently settled in a large and handsome building erected for it. Among the chief of the leading New Yorkers who contributed the quarter of a million of dollars finally necessary to this end, was the Honorable Edwin D. Morgan, on whose staff Dr. Agnew acted as Surgeon-General in 1859 and 1860.

Dr. Agnew did a large share of the surgical work at the Brooklyn Eye and Ear Hospital for a number of years, and in the Manhattan up to the moment of his fatal illness. He was easily among the first as an operator, and he also possessed great skill in the general management of cases, and ability in the executive care of hospitals.

He was a devout member of the Presbyterian Church with strong dogmatic convictions, but he was extremely catholic and liberal in his judgments of those whose theories of life and its duties were different from his. He was preëminently a peacemaker in the profession, in all the little difficulties and misunderstandings that arise among bodies of men with the same interests.

His contributions to medical literature are by no means the least part of his work. They are to be found in our medical journals and in the Transactions of the American Ophthalmological and Otological Societies. They were of such a nature as to be generally quoted and often translated into the German and French languages. His reputation as an ophthalmologist and otologist is as wide in Great Britain and Ireland and on the Continent of Europe as in our own country.

Dr. Agnew was a man of rather below medium height, but of most dignified presence, a graceful and interesting speaker, and a capital presiding officer. In no part of his life was there any failure. He died in the midst of the active performance of duty. He preserved to the last conscious moment the equanimity and faith that had characterized his life. He gave the most careful directions in preparation for the operation that was performed upon him, in the hope of finding an obstructed bowel. He departed this life, surrounded by his family, in the most intrepid and cheerful spirit, without fear and without reproach.

At a meeting of the New York Academy of Medicine held April 19, 1888, the following preamble and resolutions were unanimously adopted, and, as a further mark of respect to the memory of Dr. Agnew, the Academy thereupon adjourned.

The New York Academy of Medicine has been informed of the death on Wednesday, April 18, 1888, of Dr. Cornelius Rea Agnew, who, both as an officer and a member of the Academy, has been most assiduous and successful in his efforts for its welfare.

The Academy hereby records its appreciation of his untiring zeal, of his eminent ability, of his executive capacity, and of his fidelity; of the largeness of his views for its development, of his generosity both in his gifts and in personal labors for its good.

He was alert to make the best of its methods of work, as well as to improve their efficiency. He sought to develop its scientific discussions and proceedings by judicious classification of subjects; he was warmly interested in the enlargement of the library; he was exacting in attention to economy in the expenditure of its funds; he was deeply earnest in the plan for procuring a new building. In his loss the Academy has sustained a heavy blow, and the removal of his friendly and energetic personality is a great bereavement, while we shall miss his wise counsels, his discriminating judgment, his courtesy and vigor in debate, and his promptness in forwarding every scheme for the scientific and practical advantage of the Academy.

We have lost a true friend and an efficient worker. Beyond what he has done for the Academy, we are proud of his achievements in what makes the medical profession an honor and a power for good.

He founded two eye and ear hospitals and placed them on a successful basis. He aided in the organization and was for many years one of the managers of an asylum for the insane. He was active in many medical societies. While practising a specialty, his outlook and concern were for the whole profession.

He had no professional narrowness, and his judgments were always inclined to be charitable to those who differed with him. His services as a patriot are part of the history of our country; he was zealous for the civic weal, and a leader in movements for reform.

Sanitary and social improvements were among the causes to which he earnestly devoted himself. He took an active part in helping on education, both in its popular cultivation and in its higher and technical developments.

Probity, uprightness, unselfishness, and courage were typified in him, while his character was imbued and moved by deep religious conviction. His life is, to us, a glory and a stimulus.

Resolved, That we respectfully tender to his family, the assurances of our deep sympathy and with the tribute of our affection, our high admiration for the many noble qualities which were embodied in Dr. Agnew.

NEWS ITEMS.

Preliminary Programme of the Congress of American Physicians and Surgeons, to be held in Washington, September 18, 19, and 20, 1888. The *American Surgical Association* announces the following papers to be read:

Excision in Articular Disease. By Dr. John Ashhurst, Jr., of Philadelphia.

Microörganisms: their Relation to Surgical Disease. By Dr. Nicholas Senn, of Milwaukee.

Cerebral Localization: Its Relation to Operative Surgery. By Dr. Stephen Smith, of New York.

Intracranial Tumor Successfully Removed. By Dr. W. W. Keen, of Philadelphia.

Experimental Researches on Gastric Fistula, and its Bearing on Gastrostomy. By Dr. J. Collins Warren, of Boston.

Forty Years of Chloroform and Ether. By Dr. D. W. Yandell, of Louisville.

The Surgical Management of Typhlitis and Perityphlitis. By Dr. W. T. Bull, of New York.

The Choice of Operation for Vesical Calculus. By Dr. Hunter McGuire, of Richmond, Va.

Hernia: Its Treatment, etc. By Dr. C. H. Mastin, of Mobile, Ala.

The Radical Cure of Hernia. By Dr. George W. Gay, of Boston.

Certain Indications for Trephining, and their Comparative Value. By Dr. J. Wm. White, of Philadelphia.

Nerve Stretching. By Dr. N. P. Dandridge, of Cincinnati.

Nephrectomy for Gunshot Wound of the Kidney. By Dr. DeForest Willard, of Philadelphia.

The *American Association of Genito-Urinary Surgeons* announces the following papers to be read:

Clinical Observations on Diseases of the Testicles. By Dr. L. B. Bangs, of New York.

Clinical Observations on Chronic Gonorrhœa, and Two Cases of Cancer of the Seminal Vesicles, with pathological specimens. By Dr. J. P. Bryson, of St. Louis.

Operative Treatment of Hypertrophy of the Prostate; and Case of Bowel Ending in the Urethra of a Child Four Weeks Old; Relief by Operation. By Dr. A. T. Cabot, of Boston.

On the Effects of Rapid Changes of Altitude in an Advanced Case of Interstitial Nephritis. By Dr. George Chismore, of San Francisco.

The Connection between Masturbation and Stricture. By S. W. Gross, of Philadelphia.

Operations on the Kidney. By Dr. W. H. Hingston, of Montreal.

Syphiloma of the Vulva. By Dr. J. N. Hyde, of Chicago.

The Curability of Urethral Stricture by Electricity, and Investigations; and The Comparative Value of Suprapubic and Perineal Drainage in Curable and Incurable Bladder Disease. By Dr. E. L. Keys, of New York.

The Filaria Sanguinis Hominis in the United States, Especially in its Relationship to Chylocele of the Tunica Vaginalis Testis; and A Case of Perineal Section for Traumatic Retention; Unusual Condition of the Bladder. By Dr. J. E. Michael, of Baltimore.

The Prophylaxis of Syphilis. By Dr. P. A. Morrow, of New York.

Unusual Case of Urethral Calculus. By Dr. H G. Mudd, of S. Louis.

On the Radical Cure of Stricture by Dilating Urethrotomy; and Demonstration of a Perfected Evacuator, and an Improvement in the Method of Removal of Débris from the Bladder. By Dr. F. N. Otis, of New York.

Pyæmia as a Direct Sequel of Gonorrhœa. By Dr. R. Park, of Buffalo.

Retrojections in Gonorrhœa. By Dr. E. R. Palmer, of Louisville.

Prostatotomy for Enlarged Prostate at the Age of Forty-two. By Dr. Abner Post, of Boston.

A Case of Removal of Both Testicles for Recurrent Carcinoma; and A Case of Nephrolithiasis Complicated with Hydronephrosis in which Lumbar Nephrotomy was Performed. By Dr. F. W. Rockwell, of Brooklyn.

Some Points on the Differential Diagnosis of Bladder and Kidney Affections with Demonstrations of the Cystoscope and other Instruments; and On the Physiology of the Bladder. By Dr. Alexander W. Stein, of New York.

Local Treatment of Chronic Urethral Discharges. By Dr. F. R. Sturgis, of New York.

Some Points on the Etiology of Stricture of the Urethra. By Dr. R. W. Taylor, of New York.

Operative Treatment of Hypertrophy of the Prostate; and Spontaneous Fracture of Stone in the Bladder. By Dr. F. S. Watson, of Boston.

The Relation of the Prostate to Chronic Urethral Discharges; The Value of the Tolerance of the Iodides as a Diagnostic Test of Syphilis; and Urethral Stricture and Enlarged Prostate in their Relation to Vesical Calculus and Calculous Pyelitis, with Cases. By Dr. J. William White, of Philadelphia.

The Prognosis of Stricture, based on Thirty Years Death Record of Stricture at the London Hospital and the Practice at St. Peter's Hospital. By Dr. E. Hurry Fenwick, of London.

The Congenital Anomalies of the External Urethral Orifice. By Dr. C. Kaufmann, of Zurich.

Death of Dr. Edward G. Loring.—We regret to record the sudden death of Dr. Loring in New York City on the evening of the 23d inst., presumably from heart disease. Dr. Loring started out in his usual health, and when returning late in the afternoon dropped in the street and died almost instantly.

Dr. Loring graduated from the Harvard Medical School in 1864, and subsequently entered upon the active practice of ophthalmology. He was a member of the American Ophthalmological Society, a frequent contributor to the literature of his specialty, and the author of a textbook on Ophthalmoscopy.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM APRIL 17 TO APRIL 23, 1888.

STERNBERG, GEORGE M., *Major and Surgeon.*—Having been instructed by the President to proceed to the Island of Cuba, for the purpose of continuing his investigations of the methods of preventing the spread of epidemic diseases, will in connection with his present duties, report to the Secretary of the Treasury for further instructions.—*S. O 89, A. G. O.*, April 18, 1888.

The operation of par. 17, S. O. 79, c. s., A. G. O. (so much thereof as relates to GEO C. BUSHNELL, *Captain and Assistant Surgeon*, U. S. Army) is suspended until May 1, 1888.—*S. O. 90, A. G. O.*, April 19, 1888.

ARTHUR, WM H., *Captain and Assistant Surgeon.*—Ordered from Fort Niagara, N. Y., to Fort Bowie, Arizona, to take effect on the expiration of his present leave of absence.—*S. O. 86, A. G O*, April 14, 1888.

BLACK, CHARLES S., *First Lieutenant and Assistant Surgeon.*—Ordered from Fort Davis, Texas, to Fort Sidney, Nebraska.—*S O. 86, A G. O.*, April 14, 1888.

CROSBY, WILLIAM D., *First Lieutenant and Assistant Surgeon.*—Ordered for duty at Jefferson Barracks, Mo., after being relieved by Assistant Surgeon William H. Arthur, and upon expiration of the leave of absence granted him in S. O 60, A. G. O., March 14, 1888.—*S O 86, A. G. O.*, April 14, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING APRIL 21, 1888.

HUTTON, W. H. H., *Surgeon.*—To proceed to Biloxi, Miss., on special duty, April 21, 1888.

LONG, W. H., *Surgeon.*—Granted leave of absence for fourteen days, April 21, 1888

SAWTELLE, H. W., *Surgeon.*—Granted leave of absence for seven days, April 21, 1888.

URQUHART, F. M., *Passed Assistant Surgeon.*—Granted leave of absence for seven days, April 10, 1888. To assume temporary charge of Cape Charles Quarantine Station, April 17, 1888.

WHITE, J. H., *Passed Assistant Surgeon.*—Relieved from quarantine duties at Sapelo Station, April 21, 1888.

WILLIAMS, L. L., *Passed Assistant Surgeon.*—Relieved from duty at Marine-Hospital, Boston, Mass.; to assume charge of Cape Charles Quarantine Station, April 17, 1888.

BRATTON, W. D., *Passed Assistant Surgeon.*—Relieved from duty at Marine-Hospital, San Francisco, California; detailed as medical officer Revenue Steamer "Bear," during summer cruise, April 19, 1888.

THE MEDICAL NEWS.

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ORIGINAL LECTURES.

THE MIDDLETON GOLDSMITH LECTURE.

ON THE RELATION OF THE DISEASES OF THE KIDNEY, ESPECIALLY THE BRIGHT'S DISEASES, TO DISEASES OF THE HEART.

Delivered before the New York Pathological Society, April 18, 1888.

BY J. M. DA COSTA, M.D., LL.D.,

PROFESSOR OF THE PRINCIPLES AND PRACTICE OF MEDICINE AT THE JEFFERSON MEDICAL COLLEGE, PHILADELPHIA; PHYSICIAN TO THE PENNSYLVANIA HOSPITAL.

WHEN, by your kind thought, I was asked to deliver the Middleton Goldsmith lecture before your learned body, several subjects occurred to me which, from their great pathological interest, seemed worthy of the occasion, and which I believe the generous founder of these lectures would have approved of, could his cheery presence be here to animate us. From among these I choose, partly because it has been with me one alike of pathological and clinical investigation, the relation of diseases of the kidney, especially the Bright's diseases, to diseases of the heart. Much has been done of late years to examine this subject; but it is far from being clear or complete, and I must claim your indulgence if, in the endeavor to add a little to our knowledge of it, I allude to some facts which to you must be trite.

We all know that there is a close connection between diseases of the kidneys and diseases of the heart. But how intimate is this connection, and what determines it? Is there anything in an affection of the heart which would lead to a kidney affection? Or is the kidney disorder the starting-point of the undoubted combination observed? Again, are the lesions, when found together, both due to a common cause which determines them, and not the direct consequence of each other?

Allow me to detain you with a brief discussion of these weighty questions, before I call your attention to some of the finer points of pathological research which I shall attempt to demonstrate to you.

One of the first questions to solve is, Whether disease of the heart in itself leads to disease of the kidneys? The general impression is that it often, indeed generally, does. But on analyzing a large number of cases I find that this belief is incorrect. I will here give some of the results of my investigations into the matter, and will take the records of the Pennsylvania Hospital for a period of ten years, extending from the beginning of 1877 to the beginning of 1887, and similar records from the Clinical Department of the Jefferson Medical College for a period from June, 1875, to January 1, 1888, selecting merely the cases of which it was reasonably certain that the cardiac affection was the primary lesion.

At the Pennsylvania Hospital were noted of such cases of *valvular heart affections*, 76; at the Jefferson Medical College Clinic, of valvular heart affections, 51. Of these 127 cases, in all of which the urine was examined, for the most part repeatedly and at different times, and in many of which, especially in the cases at the Pennsylvania Hospital, autopsies are recorded, there were in 92, it is specifically stated, no evidence of any kidney affection, as shown by the absence of casts, of albumen, and, in a number of instances, by the notes of the post-mortem changes. The 76 valvular heart cases at the Pennsylvania Hospital furnished 28 cases in which some concurrent kidney affection was observed; the 50 cases at the Jefferson Medical College Clinic showed but 7. Of these 7, in 1 (Case III. of series), happening in a child with a mitral regurgitation, there had been scarlet fever three years, and an attack of rheumatism two years prior to the record of the case; there was hypertrophy with dilatation in connection with the valvular disease, and chronic parenchymatous nephritis. In another case (Case XIII.), that of a man fifty-two years of age, the mitral lesion, following rheumatism, was associated with urine one-fourth albuminous and of character usual in parenchymatous nephritis. The dropsy began in the abdomen, the swelling there preceding that of the feet and legs for nearly a year. In the third case (Case XXV.), a presystolic mitral murmur was found with hypertrophy of moderate degree, but with considerable dilatation. The heart's action was irregular, the urine was full of albumen, and attacks of cardiac asthma and occasional uræmic convulsions occurred. In the fourth case (Case XX.), a married woman, twenty years of age, there was some abdominal dropsy and a puffy face. The valvular lesion consisted in aortic regurgitation with a slight mitral regurgitation; considerable hypertrophy of the heart existed. The pulse was 128. The urine was free from sugar, of specific gravity 1.018, and contained small amounts of albumen. The kidney was considered to be in a state of parenchymatous inflammation.

Of these four cases, in all of which, probably, the kidneys were in a state of chronic parenchymatous nephritis, the first ought really to be excluded, since the kidney affection much more likely had its origin in scarlet fever, leaving thus only three undoubted cases.

In 3 more of the series albumen is mentioned as occurring in very small quantities. In one (Case XVI.), it was present without tube casts; in another (Case XXXI.), where a mitral presystolic murmur as well as an adherent pericardium existed, a few hyaline tube casts were discerned in a feebly acid urine, free from bile and sugar, but containing a small amount of albumen and crystals of oxalate of lime. In a third, in which mitral regurgitation with considerable hypertrophy and dilatation was noted, albumen in small and varying amounts was detected, but nothing else. In all three instances it was due to congestion of the kidneys, and not an evidence of Bright's disease. We have then but 3 cases in 51 in which a kidney affection really existed.

I will now examine the 28 cases out of the 76 recorded at the Pennsylvania Hospital, in which the urine examinations indicated coexisting disorder of the kidneys. In 16 of the 28 the record speaks specifically of but small amounts or of traces of albumen and of the absence of casts. In one of these (Case I.), the autopsy tells of kidneys showing no marked alteration of structure except that, weighing respectively six and seven ounces, the capsules were thickened, and the right kidney contained two small cysts. The highest amount of albumen recorded in these 16 cases is one-sixth of the test-tube, sometimes one-tenth, and often the merest trace.

In 6 cases (Cases II., XVI., LV., LXIII., LXIX., LXXVI.) tube casts are described in addition to the albumen. They were hyaline or slightly granular casts. In 2 of these 6 cases we have autopsies; and this is a summary of the record. In one (Case LXIII.), the hypertrophied heart weighed thirty-six ounces, there was marked insufficiency from contraction of the aortic leaflets, slight thickening of the mitral; the kidneys were congested, cyanotic, otherwise normal. In the other (Case LXIX.), the heart weighed fifteen ounces, the mitral and aortic valves were both thickened. The kidneys were congested, but not altered in structure.

In 6 cases the clinical record is that of much more serious disease. But one of these (Case LXV.) we must at once exclude, as the albumen, the pus, the epithelium, which existed in connection with the mitral disease were clearly of vesical origin, and any renal implication was most doubtful. Five cases of marked renal affection, with highly albuminous urine, we still have to account for. Of these, in one (Case LXI.) there were also pus cells and bladder epithelium; but distinct renal casts were detected, and the case was looked upon as one of parenchymatous nephritis complicating mitral insufficiency. In two (Cases XLII. and LIV.), the same view was taken of the renal complications, associated in Case XLII. with mitral narrowing; in Case LIV. with both mitral and aortic insufficiency. But in this case, in which highly granular and hyaline casts abounded, and in which the albumen was in bulk two-thirds of the test-tube, the conclusion is vitiated by the patient having been a great drunkard, and all his tissues having been profoundly altered. Case XLVII. is very instructive on account of its clear history. It happened in a man who had rheumatism thirteen years prior to admission into the hospital, but in whom dropsy and puffiness of the face only appeared two months before. The urine contained albumen, granules, and fatty casts. The greatly enlarged heart weighed, with clots, thirty-six ounces, without clots thirty-two ounces. The mitral orifice readily admitted four fingers, so did the tricuspid orifice; the aorta was fully twice as thick as normal, but the aortic valves were competent. The walls of the right auricle were double the natural thickness; the left ventricle, its cavity enlarged about one-half, had walls measuring near the base one inch. The kidneys were engorged, and appeared in the early stages of parenchymatous nephritis. The left kidney, weighing twenty-four ounces, contained a few cysts on the surface, its bloodvessels were prominent, but not thickened. The right kidney was about the same in size and structure.

In Case LXX. we also have an autopsy. The aortic and mitral leaflets were thickened and contracted. The kidneys were large, firm, harder than normal and evidently diseased, but showed no adherent capsules or signs of contraction.

Summing up the whole inquiry, we find in 127 cases of valvular disease of the heart, but 8 in which any true affection of the kidney existed—anything more than mere congestion. And among these eight, there is not one instance of the contracted or cirrhotic kidney. In truth, the kidney disorder that results from a valvular disease of the heart is simply a congested kidney of full size, redder, a little more glistening, and in elderly people, or where the congestion has been of long standing, firmer than normal, showing even slight increase of fibroid texture, and, perhaps, a rather more adherent capsule. Persistent engorgement of the renal veins gives the well-known livid, cyanotic appearance to the somewhat indurated organ. The epithelium of the tubes is swollen, and finally undergoes granular degeneration.

I have, by the analysis of the cases, endeavored to give you a proof how rarely valvular disease of the heart leads to chronic disease of the kidneys, other than congestion. When it does, the form of affection is that of a chronic congestion, which, in its turn, passes into a parenchymatous nephritis. The granular contracted kidney does not, I believe, result from the process of congestion just alluded to; though, as I have already said, occasionally, especially in elderly people, the kidneys from long-standing congestion may appear hard, and exhibit a slight amount of fibroid change. These statements seem at variance with those of one of the most eminent of your members, Dr. Delafield,[1] who, in 137 cases of death from heart disease, reports 27 large white kidneys, 29 atrophied kidneys, and 28 of chronic nephritis which could not be classed as either large white, or atrophied organs. Perhaps the apparent discrepancy is to be explained by the cases being heart disease, of which it was not specifically known whether it preceded the renal affection or followed it.

During life it may be very difficult in individual cases to determine whether we have, as the result of the heart malady, simply a congestive condition of the kidneys, or real Bright's disease; in truth, as in both states dropsy is a prominent symptom, we obtain but little aid from the general symptoms, having to base our opinion largely on an accurate cardiac investigation. It may be thought that the urine would afford us much assistance; but this it does not always do. A good many of my observations in purely cardiac cases, speak of urine of low specific gravity, scanty, containing traces of albumen, and here and there casts. The character of these casts is, for the most part, epithelial and not highly granular, though this, too, must not be taken as an absolute rule. On the whole, the most important diagnostic sign, with reference to the urine, is found in the slight and varying amounts of albumen and in the infrequency of the casts. Moreover, though it has been stated that the urine in even these heart cases with renal complication which is not Bright's disease, may have a low specific gravity—in one of my cases it was only 1.006—as a rule, the specific gravity of the scanty urine is high, ranging from 1.020 to 1.024; in one instance of mitral disease my record speaks of 1.030. Sugar was examined for, but found only once (Case XXII. of the Jefferson Medical

[1] System of Medicine by American authors, vol. iv.

College series); here there was aortic regurgitation. Urates, my notes say, are often abundant, biliary coloring matter is not infrequent.

The character of the pulse, the absence of marked arterial tension, and the precise physical signs of the cardiac disease, give us more valuable diagnostic evidence, taken as a whole, than the state of the urine. We may also lay stress on the want of uræmic symptoms, and avail ourselves of the ophthalmoscope as a means of diagnosis. It has, in fact, happened to me several times to determine, by finding albuminuric retinitis, the true meaning of the renal change and the secondary nature of the valvular affection. In one of these instances, indeed, albumen was at several examinations absent, tube casts were but few, the specific gravity was, as a rule, low; but the whole progress of the case, the uræmic symptoms which arose, the absence of dropsy, showed, irrespective of the eye appearances, that the renal malady was the preponderating and original affection.

Before proceeding it may not be without interest to point out that the most common form of valvular disease, associated with renal disorder of the kinds we have found to exist, is mitral narrowing. In 8 of the cases at the Pennsylvania Hospital it is noted only in 2 that the urine is free from albumen. In the cases in which a real structural affection, a parenchymatous nephritis, is developed, mitral stenosis has a preponderating influence. Next stands—for tricuspid disease is so rare that I have not data sufficient to judge by—mitral regurgitation. In uncomplicated aortic disease albumen and casts are very seldom detected in the urine, so seldom that it is always a question whether a mitral complication is present when kidney engorgement is found.

Pure *hypertrophy* and pure *dilatation*, instances, therefore, of enlargement without valve affection, give us the same form of kidney derangement we have been studying. But with reference to hypertrophy, unless the cavities are at the same time decidedly stretched we do not find albuminous urine. Thus this existed in only 1 out of 10 cases noted at the Jefferson Clinic. In pure dilatation, urine albuminous in traces, indicative of congestion of the kidney, is more common. Still, it does not exist in the majority of cases; and I have known it not to appear until the last week of life, even though that life had been a burden for months, owing to the enormous dropsical swelling and the turgid lungs.

We have been studying diseases of the heart and the kind of kidney affections they induce, selecting for analysis cases where, from the history, or the post-mortem results, or from both, the record of the antecedent malady was clear. We now turn to diseases of the kidney and their combination with diseases of the heart. It is well known that this combination is a frequent one. We find diseases of the kidney associated with valvular disease of the heart; with hypertrophy; with dilatation; and with pericardial affections. In studying the subject I mean to draw conclusions only from instances in which from the history, as well as from the concomitant features of the case, we may fairly judge that the kidneys were the first or at least simultaneously diseased.

Let us examine the *valvular diseases of the heart* as they are found associated with affections of the kidney. I find, looking at the records of the Pennsylvania Hospital for ten years, from the beginning of 1877 to the beginning of 1887, that in 101 cases of renal disease in which the state of the heart is particularly mentioned, 41 cases have a concurrent valvular heart affection, and in 60 there is no such lesion. Of the total 101 cases, 57 are acute Bright's disease, and 44 chronic. Of the 41 renal cases with valvular lesion of the heart, 29 are Bright's cases of the chronic type and 12 are of the acute type. Of the 29 cases of chronic Bright's disease with associated valvular heart lesion, it is noticed that 13 have a preceding history of rheumatism. In 5 there is a positive statement of no preceding rheumatic history. In the other 11 cases, nothing is remarked about rheumatism.

Of the 12 acute cases with concurrent valvular lesion, 3 cases have the record that rheumatism did not precede. In the other 9 cases nothing is said with reference to a rheumatic history.

Out of 29 cases of chronic Bright's disease with valvular disease, the age of the youngest was thirty-three years; 14 of the 29 were beyond the age of forty-five years; the oldest was sixty-five years of age.

Of the 44 chronic renal cases, 8 were examples of the large white kidney. The ages of these 8 were from forty-eight to sixty years. 1 case had double mitral and aortic murmurs, and was preceded by several attacks of acute rheumatism. Of the other 7, nothing is stated about either the heart or a rheumatic history.

Of the 57 acute renal cases, in none are mentioned signs of cardiac hypertrophy without a valvular affection, nor, indeed, do the notes show that even with this complication was the heart enlarged.

In the notes of the Clinic of the Jefferson Medical College, in 21 acute cases of Bright's disease, 20 of which had marked dropsical symptoms, the heart was found to be normal in all but 4, 2 of which had had a previous history of acute rheumatism. In these 4 cases there were evidences of valvular disease without hypertrophy.

From an analysis of these observations, it becomes evident that the character of the kidney affection, in combination with the valvular lesion in the heart, is in the vast majority of instances the contracted kidney. Next stands acute Bright's disease, where also we find valvular affections, but here without the hypertrophy so common in the first group. In the acute, the strong influence rheumatism exerts is very evident; nor is that influence lost in the chronic, where an unusually large proportion are associated with rheumatism, too large a proportion for us to assume that it is a mere coincidence.

Let us inquire what the state of the valve lesion is. It is chiefly an affection of the mitral valve, consisting in a thickening of the mitral, with here and there rough deposits. Next in frequency, but with similar pathological changes, we observe a lesion of the aortic valves, occasioning either aortic narrowing or aortic regurgitation. A further cause of the valve affection is seen in some of these cases to be due, I believe, to the hypertrophy of the heart forming part of the Bright's disease preceding some general thickening of the valve, though even this may be wanting. A stretching of the valve subsequently takes place, but insufficient to close the orifice in the enlarging heart. Thus the hypertrophy and the dilated condition of the cavities give rise to the valvular imperfection rather than this to the enlargement of the heart. It is in this way that I explain some very striking and interesting cases of hypertrophy occurring in advance of the valvular lesion, which I have observed, and in

which the autopsies showed simply this imperfect closure of the orifice with a slightly thickened mitral valve, and at times with shortened and more rigid papillary muscles.

I have known, but far less often, a similar state at the aortic orifice. The aortic disease that existed was due to the stretching of the valve, which, having reached a certain point, could go no further. This stretching, with the simultaneous thickening, produced an opening through which the blood flowed back. It is thus that we may have a valvular disease following hypertrophy with dilatation, rather as the result of this process, than the hypertrophy and dilatation the result of it. If you ask me whether this is a common cause of valvular lesion in Bright's disease, I say it is distinctly not; it is very much less common than marked valvular thickening with degenerative change.

You see, then, that the valvular disease of the heart which occurs in diseases of the kidney, may be of varying origin; chronic thickening, deposits, degenerative changes, coexisting rheumatic alterations, which have led to these changes, and, lastly, mere hypertrophy and dilatation, which, associated, perhaps, with slight valve thickening, or with rigid papillary muscles, in its turn leads to valvular imperfection. Omitting the last-named group, the ordinary valvular affections in the Bright's diseases, are the result of the altered tissue nutrition of the valves and the degenerative changes which take place there, as they take place in both the large and small vessels of the body. They are favored to a greater or less degree by the morbid products, which, from want of proper elimination on the part of the kidneys, circulate in the blood. It may also be a question whether, in part at least, the altered nutrition of the valve may not be due to affection of their nervous supply. The changes, the degenerative ones certainly, are favored by age. Yet we cannot assume that age is the important factor it appears at first sight; for the acute Bright's affections show also, as has been proved, a strong tendency to the implication of the valvular apparatus, and the acute affections are much more common in the young, or, at least, in younger people, than are the chronic affections. Let me further notice, once more, a point brought out in the analysis of the cases submitted to you, namely, the frequent existence of rheumatism. This may well produce the valve injuries at the same time that it leads to other changes in the body; and thus be a general cause, both for the valvular affection and for the disease of the kidney and of other textures.

Before ceasing to examine this aspect of the subject, I will call your attention to some purely clinical facts which must make us receive with caution many of the statements of coexisting valvular disease of the heart and of Bright's disease. It is often recorded that there was present a soft murmur, variously heard; in some instances at the apex, in others at the right base. Now these murmurs in Bright's disease are not the result of valvular affection. They come from the state of the blood; or they are simply murmurs from temporary perversion of valve action, what we might call functional murmurs. They are inconstant, they are soft, and they are not signs of valvular disease of the heart. You will easily see that the error is all the more readily committed because we have hypertrophy, with or without dilatation, as such a common attendant upon Bright's malady. Thus, the mere hearing of a murmur in the heart is not a sign of valve affection in Bright's disease, not even when there is coexisting hypertrophy. We have to take into account its persistence, its character, generally rough, the state of the second sound of the heart, and the fact that it may be heard in the axilla, and posteriorly near the angle of the scapula, to make clear that it is of organic type, and not of the temporary character just referred to. Bearing this in mind, we shall have to reject a great many of the cases of so-called valvular disease of the heart often loosely reported, in which the only evidence of the valvular affection is based upon a murmur, the particular character of which is not stated; or its softness or temporary nature is alluded to, but an erroneous conclusion is drawn from its existence.

The difficulty does not exist with reference to diastolic murmurs, which, in my experience, are always organic. But it is not lessened by a study of the pulse, which is in itself altered by the arterial lesions of the Bright's malady and by the thickened left ventricle; nor can we place, for similar reasons, much dependence on sphygmographic tracings.

I think, then, that the number of cases of valvular disease of the heart, existing as a complication of Bright's disease, is more often over-stated than under-stated. Indeed, with the greatest care, unless the case have been for a long time under observation, it may be almost impossible to detect the true relation between the maladies. Much of the difficulty will be, however, solved, if we accustom ourselves to look upon them as not dependant upon each other, but due to a common cause, working almost simultaneously, or even at different periods, mischief in kidney, heart, and other textures. To the frequent starting of this common cause in rheumatism, attention has been called.

Let us pass to an examination of the *hypertrophy of the heart* which exists in combination with Bright's disease of the kidneys; I mean where the hypertrophy, with or without some dilatation, is a pure process, and not complicated with valvular disease. With reference to the acute cases of Bright's disease, I have already mentioned that we do not find hypertrophy. In the 22 cases of this character at the Jefferson Clinic, and in the 57 cases at the Pennsylvania Hospital, therefore in 79 cases, in most of which there was marked dropsy, in not one were the signs those of hypertrophy, not even in the instances with valvular lesion. A few doubtful exceptions are observed in the notes where strength of impulse is mentioned; but in these it is probable that the valvular affection which coexisted had its origin in a previous attack of rheumatism.

Thus then we may assume as positive that hypertrophy of the heart does not occur in acute Bright's disease. This is vastly different in the chronic form of the malady. Here, as is well known, hypertrophy is the rule. This subject is a matter of such common observation that it scarcely needs reinforcement by figures; but I will quote, since they are based solely upon post-mortem records on a most extensive scale, the recent researches of Goodheart in *Guy's Hospital Reports* for 1886.

In the ten years from 1873 to 1882 inclusive, there were autopsies of 344 cases of granular kidney, and of 196 of chronic parenchymatous nephritis. The weight of the heart in the cases in which the kidneys were described as granular, was in only 103 under 12 ounces, which was, therefore, within the limits of average weight. In

226 it was above this weight. Making allowance for all possible exceptions, as old age and wasting disease, and adding 36 which were hypertrophied hearts, though of average weight, there are 262 cases of marked hypertrophy in 329 undoubtedly granular kidneys.

After making all deductions for the cases of chronic parenchymatous nephritis, there were in 25 only a heart of average weight; in 119 there was hypertrophy of the left ventricle, a proportion of over 1 to 4. In lardaceous disease of the kidney, hypertrophic changes in the heart and arteries were not observed, which agrees well with the general observation on the subject.

Dilatation of the heart becomes associated in a more or less marked degree with the growing muscle. It affects preëminently the left side of the heart. In Goodhart's paper, just quoted, I find 51 cases of notable dilatation of the left ventricle associated with hypertrophy in the 344 cases of granular kidney, and 33 cases in the 196 cases of chronic parenchymatous nephritis. It would, therefore, appear that the dilatation predominates in chronic parenchymatous nephritis; while pure hypertrophy does so in granular kidney.

In cases of hypertrophy such as I have described, the heart attains very great size; the muscles are firm; for the most part it is a pure hypertrophy, only here and there there takes place some increase of the fibrous texture as well as of the muscular. The muscular fibres are a little more opaque, and sometimes more granular than normal. As the disease advances, secondary degeneration, granular and fatty, may occur; but they do not happen unless there be decided coexisting disease of the vessels.

The state of the vessels in these instances of hypertrophy is very interesting to note. They show the same condition which has been found in the kidneys, in the brain, in the spinal marrow, in the lungs, and in many other parts of the body.

The inner coat is thickened, the muscular coat hypertrophied, the outer coat in a state of fibroid change, and the whole lumen of the vessel greatly lessened by these encroaching lesions. This lessening of the calibre is the same, as are the changes the same, that we find in the renal vessels, and it may take place to a very great degree. My colleague at the Pennsylvania Hospital, Dr. Arthur V. Meigs, has recently shown me a section of a heart obtained from a man under his care who died of granular kidney, with aortic valve disease, and left ventricle from three-fourths of an inch to an inch thick, exhibiting besides increased muscle beginning interstitial change. Microscopically examined, the first ascending branch of the left coronary artery was so much thickened, chiefly by the increase of the intima, that the lumen of the vessel was a mere chink, the thickening being irregular, about four times more on one side than the other.

You will readily see how such a state of things might lead to secondary degeneration by cutting off the blood supply from the hypertrophied muscle; and it is most likely that these degenerations which we have in the hypertrophied hearts of Bright's disease, which, however, I believe are not the rule, come on as an after-result of the altered vascular supply.

As a few minutes ago, I called your attention to some points of diagnosis with reference to valvular disease in Bright's affection, I may now call your attention to some points with reference to hypertrophy. It is not always easy to make this out clinically. We have to consider not only the size of the percussion dulness, but the extent of the impulse as well as its force and position; the lowered apex beat, which is often felt on a line with or beyond the nipple; and the heavy character of the first sound. Nor must we fail to take into account the character of the second sound, its accentuation at the base, which commonly happens in these hypertrophies in connection with renal change. Strong, extended impulse, displaced apex, altered sounds, and increased percussion dulness are the phenomena by which we judge; but not by any one of these alone, certainly not by the impulse, which may be temporarily increased by other causes than cardiac hypertrophy. On the whole, I lay most stress on the altered character of the sounds of the heart, both at the apex and the base, and the changed position of the impulse.

The enlargement of the heart which takes place in Bright's disease of the kidney may be made use of in prognosis. We are often greatly at a loss to form an opinion as to the probable length of the case and to the way in which it is progressing. Up to a certain point, the occurrence of dropsy and of eye changes will assist us, as well as the evidences of marked arterial tension. But dropsy, while common in chronic parenchymatous nephritis, is very generally absent, or but slight in cirrhotic kidney. The urinary examination does not always afford us much light, for some of the worst cases are those in which—I allude especially to the cirrhotic kidney—the amount of albumen is small, or often temporarily absent, and in which the tube-casts are few; nor can we lay too much stress on the character of these casts. It is under these circumstances that I think the heart condition becomes an especially valuable means of prognosis. Where the heart is but slightly affected, there will be reason to believe that the case will continue for some time, provided we do not observe signs of uræmic poisoning. Where, on the other hand, the hypertrophy is marked, there is ground for the fear that the disease is more general, is advancing, and that the case will not belong to those long cases of the affection which we sometimes encounter. Thus the study of the heart may be made use of as a means of estimating the amount of general change and the likelihood of shorter or longer life.

Let me reiterate the view that, according to my experience, the hypertrophy in the majority of instances is a pure hypertrophy, unconnected with degenerative changes. It is certainly so in the earlier stages of the affection. In instances of long-standing disease and in elderly people, these degenerative changes may be found in the progress of the case; but my observations do not at all agree with those of Buhl, who has stated that fibrous and chronic interstitial myocarditis is very frequently found in connection with the hypertrophy. To its occasional occurrence, I have already alluded.

Dilatation of the heart, unconnected with hypertrophy, or at least predominating over the increase of the muscular walls, is extremely rare. When it happens, it is the latter kind of cases, namely, beginning as hypertrophy, but the rate of increase of the muscular structure not remaining in proportion to the dilatation of the cavities that is met with. Among the cases at the Jefferson Clinic, I have collected some instances of what might be fairly called dilatation unaccompanied by hypertrophy, or attended only by a slight degree of hypertrophy; and

I have seen a small number in private practice. Goodhart points out that in the young the risk of dilatation of the heart is much greater than in older persons.

Another lesion of the heart which we observe in connection with Bright's disease, both acute and chronic, is *pericarditis*. But inflammation of the outer membrane of the heart forms only part of that general tendency to serous inflammation which we find in Bright's disease. It is probably due to the contaminated state of the blood, and neither its occurrence nor its explanation need here detain us.

Of all the heart affections passed in review, hypertrophy is the most common. Let us look at its cause. I leave out of consideration those cases where clearly existing valvular disease may have led to the hypertrophy; though even here it is always questionable whether some of the increased growth be not due to other causes than the valvular affection, and may not have preceded it. I will take the pure instances of hypertrophy and ask, How are we to explain them? It will serve our purpose best if, in considering this much mooted and most intricate subject, we give a short summary of the different views held as to the cause of the hypertrophy, rather than attempt an historical review of how and by whom these views have been brought forward.

One of the main views entertained is, that the hypertrophy of the heart is due to the blood contaminated by renal excrementitious matter, exerting a stimulating effect upon the action of the heart, thus leading to hypertrophy of the ventricle; and, further, that the impure blood requires greater force of ventricular contraction to propel it through the unwilling vessels. This view has the great authority of Bright, and is to this day advocated by some eminent teachers.

A second view, while taking note of the influence of the impure blood, holds that the altered blood tension produced by the disease of the kidney, and the difficulty of the blood circulating through it, give rise not only to the well-known feature of heightened arterial tension, but to increased size of the heart to overcome the resistance of the renal organs. This is largely the view of Traube and some of the German investigators, and has been recently reaffirmed by Cornil.[1]

A third view is that the left ventricle beats with augmented force because the arterioles refuse to receive the altered blood, and in consequence of the resistance these vessels hypertrophy, especially in the arterial coat. To overcome this muscular resistance, the heart has to act with greater force, and its muscles increase. This is, in the main, the view of George Johnson, and is largely based on that change in the muscular coat of the arteries which he has so well described.

A fourth view is that a fibroid degeneration, a fibroid overgrowth of the outer coats of the arteries, takes place over a large portion of the vascular system. In consequence of this, the heart has to struggle to overcome the resistance of the permanently narrowed vessels, narrowed by these hyaline, fibroid changes; and the enhanced blood-pressure shows not only in the raised arterial tension but the increased resistance leads also to cardiac hypertrophy. This is mainly the view of arterio-capillary changes, of a vascular fibrosis as the cause of hypertrophy of the heart, which has been strongly and ably advocated by Gull and Sutton.

The last two views have much in common, at least as regards the production of the hypertrophy in consequence of the altered condition of the vessels.

I will mention a fifth view, which for the present I shall simply indicate, namely, that the hypertrophy, as well as to a great extent the vascular changes, are the result of a common process which takes its origin in the ganglionic nervous system. This is the view which in its main features flows out of some researches made by Dr. Longstreth and myself, and which here I simply state, intending presently to call your attention to the particular facts bearing on it.

Now, analyzing these different views, let us first take notice of the assumed influence of impure blood, and it is for practical purposes possible at the same time to examine into the supposed alteration of the blood-pressure due to the resisting kidneys. These views which I thus group together seem to me untenable. If true, why should we not have hypertrophy of the heart, and especially the form of hypertrophy far the most common, of the left ventricle, in other diseases of the kidneys than Bright's disease? Why should not, too, in the acute form of this malady, the heart be increased? It might be objected to this argument that, in the acute affection, the disease does not last long enough to produce muscular increase; but the objection will not hold good with reference to the other diseases of the kidney, in which serious, we might even say destructive kidney lesions take place, in which uræmic symptoms happen, yet in which there is no cardiac hypertrophy. I will take the instances, a number of which have come under my observation, of persons dying from extensive cystic degeneration of the kidneys in whom the heart was found absolutely normal.

Here is one. In a gentleman whom I attended with a very large tumor in the abdomen, and who passed bloody and albuminous urine, there were for three weeks before death most marked uræmic symptoms. At the autopsy both kidneys were enormously enlarged, measured each about fourteen inches in length, were filled with cysts, and no trace of renal structure could be detected. It was, indeed, difficult to understand how life could have lasted so long with such extreme disorganization; yet the heart was absolutely healthy.

In a second case, the kidneys measured six inches in length, nearly four in width, and three and a half in thickness. The tissue was almost wholly converted into cysts, from the size of an egg to that of a pin's head. There was no disease of the heart. This specimen is now in the Museum of the Pennsylvania Hospital.

In a third case the two kidneys were greatly enlarged, irregular in outline, the capsule was roughened by shreds of inflammatory adhesions; the organs, measuring each about seven inches in length and four in width, were filled with cysts. The thoracic viscera were in an absolutely normal condition. The liver was found to be highly fatty. The kidneys are also in the Museum of the Pennsylvania Hospital.

I shall cite two more cases, partly to sustain my view, and partly on account of the evident uræmia which preceded death. A man, under forty years of age, by profession a gambler, was admitted into the Pennsylvania Hospital in a comatose condition. He had been struck

[1] Compte-Rendu du Congres International, tome i., Copenhagen, 1886.

at by a companion, while drinking in a saloon, but was not hit. Immediately afterward, to the astonishment of those around him, he fell to the ground unconscious, and remained in this condition until death, a day or two later. No history of his previous state of health was obtainable, further than that he had seemed well, and was nightly occupied at his business as a dealer in gambling games. The urine was found to contain some albumen, and a large amount of sediment, mostly of a cellular character. Death occurred in the hospital with all the signs of marked uræmia. The urinary secretion was extremely scanty, and the unconsciousness profound.

The circumstances connected with the death led to the arrest of the companion who aimed the blow; but the investigation of the coroner showed that death was due to natural causes, and not to violence. At the autopsy, the kidneys were found to be in an advanced state of cystic degeneration. They were greatly enlarged in all directions, and the tissue was almost entirely converted into cysts. The disease had evidently been of long duration. The lungs were normal, so was the heart.

Yet another case. A young servant woman, who had been in good health so far as known, fell on the floor while engaged at the wash-tub, and was found lying in an unconscious condition. She partly regained consciousness, but, on her admission into the hospital, could give no satisfactory history. She died a few days later in a comatose state, with every evidence of uræmia. The kidneys showed advanced cystic degeneration. The heart was normal, and no lesions were presented in the other organs, save congestion of the lungs.

I have thus presented to you five cases leading to death with the most advanced cystic degeneration of the kidneys existing, with the blood evidently impure, and, finally, occasioning, in the majority, marked uræmic symptoms, yet with actually normal condition of the heart.

I might go further in this line of argument, and call your attention to the enormous kidneys with calculi imbedded in them, kidneys which produce abdominal tumors large enough to be mistaken for gastric and omental cancers, also leading to death, and in which no disease of the heart was found; so, too, in instances of cancer of the organ; though, in this condition certainly, and even in cystic degeneration at times, the argument is somewhat vitiated by the fact that, while one kidney undergoes extreme change and disorganization, the other may remain normal, or, at least, be still capable of performing its function fairly well.

The next views, those of arterial changes, whether in the muscular coat producing muscular hypertrophy, or from fibroid growth in the outer coats, I shall not discuss, further than to say that I believe the anatomical researches on which they are founded to be correct, having often seen the conditions referred to. Nor is it necessary to go into the question which is the most common of these changes; for I think that both may be found in different cases, and even in the same case at different stages. While thus concurring in the correctness of these observations, I will point out how insufficient they are to interpret the cardiac hypertrophy; how impossible it is to prove that blood is resisted by the altered vessels on account of its character; how difficult it is to explain the enlarged heart simply as the result of vascular changes, when we have striking alterations in the vessels, both large and small, in old age, and from syphilis, and in and beyond aneurisms, where we do not find cardiac hypertrophy happening as rapidly, or to anything like the extent that it does in Bright's disease, if, indeed, it happen at all.

Let me now, before taking up the fifth view, which I told you had grown out of observations by Dr. Longstreth and myself on the nervous ganglia, call your attention briefly to these observations, and supplement them by some which have not hitherto been published. Let me add, and here acknowledge, that in the researches about to be brought forward, which were most difficult and laborious to carry out, it is to the care and attention of Dr. Longstreth that they owe their merit, rather than to anything I have myself been able to do. Let me also recall that in the investigations we made on Bright's disease[1] we found marked changes in the renal ganglia, of a character showing increased fibrous tissue and atrophy of the ganglion cells. These were associated with decided alterations in the renal vessels, as exhibited to you in these micro-photographs, which will make the matter clearer to you than I can from description. This condition in the renal ganglia has been confirmed by Saundby,[2] who, however he differs with our conclusions, has seen exactly the same pathological lesions.

I shall proceed to present to you the statement based upon eleven cases accurately observed, in which the cervical ganglia from which the cardiac nerves arise were minutely examined; and five of these cases, which tell the tale of all, I will give you in some detail. The records relate particularly to the inferior cervical ganglia, giving off mainly the inferior cardiac nerve. All of the cases were interstitial nephritis; 9 were chronic contracting kidneys, and 2 contracting kidneys of more acute form.

CASE I.—Emma H., æt. sixty-five, admitted into the Pennsylvania Hospital May 18, 1885; died May 18, 1885; admitted for cerebral hemorrhage; had vomited; was unconscious, and completely relaxed or paralyzed; had a few irregular convulsive movements; two quarts of highly albuminous urine were drawn by catheter; she died in three hours. Post-mortem examination showed an extravasation of blood in the external part of the left hemisphere, but it had not extended to the ventricles. Death resulted in this case apparently from uræmia, rather than from the cerebral clot directly. The kidneys were very much reduced in size, with thickened capsules and granular surfaces, dotted with small cysts. The left ventricular wall was much thickened, measuring over one inch. The minute structures of the inferior cervical ganglion showed many marked changes; the ganglion cells were deeply pigmented, appeared shrivelled or compressed; equally to be noticed was the tissue around the ganglion cells, composed of a delicate fibrillar tissue in which appeared very numerous round and spindle nuclei. Some of these nuclei were doubtless those of the nerve structures, but the majority were a new growth of connective and fibrillar elements; in places they were so numerous as to obscure the ganglion cells. In the greater part the vesicular nucleus of the ganglion cells could be seen, but the nucleus was generally visible faintly stained with carmine. A very striking feature was the appearance of the vascular structures; in the first place, the capillaries seemed in some parts to pervade nearly the whole area, some with a narrow calibre carrying but a single red blood corpuscle, and from this width upward to those with six corpuscles abreast, and many of these vascular tubes presented ampullar dilatations; some of

[1] American Journal of the Medical Sciences, July, 1880.

[2] British Medical Journal, Jan. 13, 1883.

this condition can be accounted for by the mode of death, but the most was due to permanent changes. The walls of the arterioles showed the thickening so often found and described in the arterial walls in these cases of renal disease.

CASE II.—Hannah G., æt. seventy, admitted September 4, 1884. No. 920. Died November 13, 1884. Had been gradually failing in health, and lately had chest symptoms and œdema; the secretion of urine had slowly diminished. On admission there was orthopnœa, the lungs were full of coarse râles, and were emphysematous, rendering any accurate determination of the size and condition of the heart impossible. The apex of the heart was far to the left of the normal. There was ascites and also diarrhœa.

The heart showed hypertrophy of the left ventricle, its tissue was undergoing fatty changes and atrophy; the kidneys although much altered did not exhibit the marked changes of the other cases. The minute structure of the inferior cervical ganglion cells indicated atrophic conditions; the cells were pale with less than the normal amount of pigment (as usually seen in the ganglia of adults dying of disease), the nucleus was plainly visible, but the nucleolus stained with carmine very faintly. Between the ganglion cells the tissue was of firmer character than normal, and appeared to encircle these cells with stiff fibres. There were no round nuclei, but only flattened spindles in this space. The capillaries were not conspicuous, but the walls of the arterioles were altered, though to a less marked degree.

CASE III.—Mary McG., æt. fifty-two, admitted Nov. 3, 1884. No. 1288. Died Jan. 30, 1885. Her history tells of a severe cold followed by swelling of the legs; urine of dark color and much reduced in amount; later, nausea and vomiting. On admission, the urine was smoky and contained fifty per cent. of albumen; the microscope showed blood-, hyaline-, and granular-casts, and also some epithelial casts. Only twelve ounces of urine were passed in twenty-four hours. Dyspnœa and diarrhœa existed. Later came uræmic convulsions and strongly urinous odor of the breath and body. Post-mortem examination: Heart weighed sixteen ounces; right distended, left contracted and much hypertrophied. Liver small, pale, and granular. Kidneys reduced in size, firm, capsule adherent and the surface granular. The case was an acute attack of nephritis in a contracting kidney.

The microscopic examination of sections of the kidney of this case was very interesting, showing the majority of the Malpighian bodies converted into firm fibrous nodules, and only in a few places were the convoluted tubes to be seen. Here and there a Malpighian body presented somewhat of a normal aspect, with a few tubes around it in which the epithelium could be distinguished. The chief feature was the fresh outpouring of small indifferent cells, as seen in acute interstitial nephritis. The ganglion cells were in an advanced state of degeneration, full of granules, shrivelled, and the nucleus and nucleolus scarcely to be distinguished. Between these cells the tissue presented a fibrous aspect.

CASE IV.—Rose B., æt. thirty-seven, admitted Dec. 13, 1884. No. 1517. Died Jan. 12, 1885. The attack followed gradually after pregnancy, with greatly diminished urine secretion—one-half teacupful in twenty-four hours. Diarrhœa and swelling of abdomen were noted. The lungs were full of râles, and the pleural cavities contained effusion. The heart action was rapid, the pulse "corded," the artery hard. The urine was albuminous and contained granular casts. Post-mortem examination: Pleural and abdominal effusions; old pericarditis; hypertrophy of the left ventricle, the wall measuring one and a half inches; liver showed cicatrices, possibly syphilitic; kidneys very small, the capsule thickened, the surface highly granular, the cortex had almost disappeared, while the cones were much distorted.

The inferior cervical ganglion presented even more highly altered conditions than in the previous case. In not a few instances the cells seemed to have nearly vanished, or a few grains of pigment evidenced their site. Other cells while showing some pigment looked blurred, shrivelled, and irregular in outline. The nucleus was misshapen, and the nucleolus was like a fragment of poorly stained matter pushed over to one side of the nucleus and attached to its wall. Around the cells the fibrous tissue formed circles, closely resembling the thickening of Bowman's capsules in a contracting kidney. Even the spindle nuclei in the tissue between the cells had lost their distinctness, and the fibres looked less firm and rigid, but coarser.

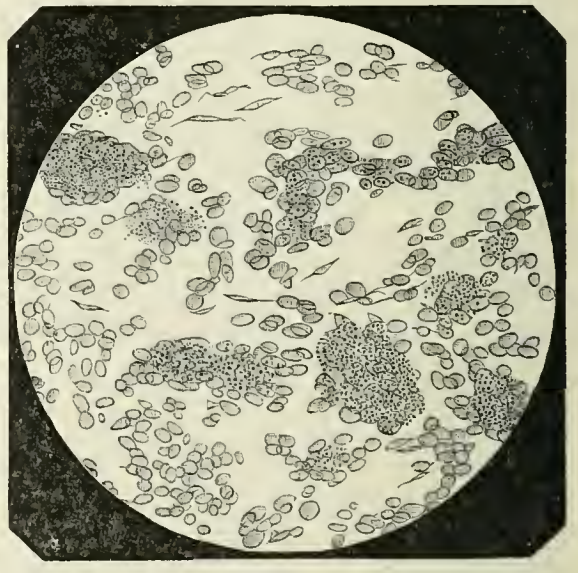
CASE V.—Mary H., æt. thirty-four. Admitted January 4, 1885. No. 1647. Died January 8, 1885.

For four months had had œdema, and for two days orthopnœa. The urine contained one-sixth albumen, and hyaline and granular casts. Death was sudden. Post-mortem examination showed old pericardial thickenings; weight twenty ounces, the left ventricle measured one and one-half inches. The kidneys weighed each one and one-half ounces, capsule thickened, and tightly adherent, the surface was very granular. On section, the cortex had almost disappeared, and the pyramids were much distorted.

This specimen was less well prepared for examination than the others, owing to the delay in obtaining the autopsy; but, however much the ganglion cells changed through the delay, this factor cannot account for the alterations of the tissue of the cardiac ganglion. The general conditions were the same very nearly as in the previous specimen.

I will not present to you any more details of cases, but will rather exhibit to you some microscopical drawings, taken directly from sections. Fig. 1 shows the ganglion

FIG. 1.



cells treated with the ordinary carmine staining, highly granular and pigmented; their outlines indistinct; the nucleated nucleus scarcely visible. The texture between the ganglion cells is crowded with small, rounded or spindle-shaped nuclei. These nuclei are specially numerous around and overlying the ganglion cells. The specimen is from a case in a moderately advanced stage of degeneration. Fig. 2 shows the lesion in a later stage. The whole tissue is firm and hard looking. The gang-

lion cells are surrounded by rings of coarse fibres, in which are a few remaining spindle nuclei. The ganglion cell itself has greatly shrivelled; the nucleus is pressed to one side, the nucleolus showing indistinctly. In some places the ganglion cells have wholly disappeared.

FIG. 2.

These, then, are the pathological minute lesions in Bright's disease in the ganglia regulating the heart movements. Before entering into the question of the bearing of the abnormal appearances, it may be well to answer the question, How does death come in the hypertrophied heart of Bright's disease? It comes with contraction of the left ventricle and dilatation of the right; in other words, it is a death of apnœa rather than one of asthenia. The diseased ganglia do not produce paralysis of the heart. As an instance of how even acute destruction of the ganglia will cause death, similar as regards the heart to that in Bright's disease, I cite the following case of injury and of hemorrhage into the cervical ganglia, the autopsy of which was most carefully made by Dr. Longstreth.

Thomas McC., aged fifty. Admitted into the Pennsylvania Hospital, February 1, 1882.

The patient fell on shipboard, fractured the third, fourth, and fifth cervical vertebræ, and became immediately paralyzed, both as to motion and sensation from the level of the second rib and deltoids downward; breathing was diaphragmatic; the pupils were contracted. There was priapism and retention of urine; the heart's action was frequent and feeble. Post-mortem examination showed large clots pressing on the cervical ganglia; at the third vertebra the cord was compressed and softened. The lungs were congested; the right heart was distended, the left ventricle firmly contracted. The microscopic examination of the ganglia, especially the inferior cervical ganglion, exhibited in many places the presence of extravasated blood around the ganglion cells; some of these cells showed already changes, especially pigmentation, although but a few hours had elapsed between the accident and death; in other respects the cells and tissue of the ganglion appeared normal. The kidneys were normal.

But to return to the examination of hypertrophy of the heart in Bright's disease. I have, I trust, made clear to you that there exist associated with the enlarged heart, marked changes in the ganglia of the sympathetic nerve from which the cardiac nerves are derived. Is it going too far to assume that these changes are an integral part of the disease; that they may determine the hypertrophy? How, I cannot explain to you exactly. It would not be difficult to bring forward a theory of loss of controlling influence on the heart, produced by the altered condition of the nervous apparatus; but our knowledge of the physiology of the nerve supply of the heart is not accurate enough to admit of absolute reasoning from cause to effect. Still, that disturbed nerve power produces changes in structure by affecting its nutrition, we know in every tissue of the body. Why should not the same be true for the heart? Again, if we adopt this view of the derangement of nerve condition and of the vasomotor influence being the starting-point, we can readily explain the well-known lesions in the vessels, both large and small. Indeed, when we look at the wide-spread changes which occur in them in Bright's disease, especially in its chronic form; when we see everywhere accumulating the evidence that these changes happen in all the vessels of the body, in those of the spinal cord, the brain, the lungs, the liver, in veins as well as arteries—we are driven to the conclusion that there must be some general cause at work which determines so great, so universal an alteration. That general cause, from the nature of things, can only be in the blood, in the vascular system itself, or come from the nervous offices which give life to the vascular system. The change is too extensive to be a mere self-determined local growth of the coats of the vessels. We cannot, indeed, ignore the agency of the waste-laden blood in its full development. But what starts the change? What is the cause of the degeneration? Is it not fair to look beside the blood, to a cause so predominant as the nervous influence, which is everywhere?

I would thus locate as most likely the original starting-point of the alteration, alike of the vessels and of the heart muscle, in the nervous ganglia and in the parts of the nervous system controlling the nutrition of these textures. What the ultimate cause of the lesion is cannot be stated, nor need we assume that one cause alone will determine it. It may be gout, it may be lithæmia, it may be rheumatism, it may be alcohol, it may be lead, it may be purely perverted nervous function from worry, from strain, from anxiety. Any one of these causes may start that alteration in the ganglionic nervous system which leads to degeneration and to the formation of increased fibrous tissue and subsequent atrophy; and with it also to derangement in the heart and in the vascular textures supplied by the affected ganglia and nerve filaments.

These are, of course, not matters that can be at once proved or adopted. You must take them as lines of thought which have come naturally from the investigations pursued, and which promise as rich a return as any that we have had from following out views hitherto brought forward. Whether the suggestions based on these researches prove to be correct or not, I think that the observations themselves furnish one more proof of the general character of what we call Bright's disease, especially in the cirrhotic form. They show us that the primary changes are to be looked for away from the kidneys, not in them, and that there is a general disease, based on a general widespread cause, underlying the vascular alteration, heart hypertrophy, and kidney disease.

But to return from these reflections to the state of the heart in Bright's disease. Looking now at the result of all the observations and the process of reasoning by which I have endeavored to collate them; looking at the general pathological facts which have been cited, I draw this conclusion: that the cardiac hypertrophy which is found in Bright's disease is not in any sense the consequence of that disease. It is an integral part of the same general morbid process, of which the kidney lesion is only the most obvious expression. You may believe, with me, that it is in the nervous system that we are to search for the ultimate, or, it may be more correct to say, the original source of the malady. You may hold that this is not proven, that the changes there are only part of the general texture alteration, and are not the first; that they are result, not cause. But I trust you will see how disseminated an alteration they indicate; how everything points to a general rather than to a local malady; and not think me too venturesome in stating that chronic Bright's disease ought not to be looked upon as an affection of the kidney at all, though it is there that, to the naked eye, its most pronounced lesions occur. In adopting this conclusion, the cases that die of apoplexy from disease of the vessels of the brain before the kidney disease shows any signs; the cases with general vascular tension in which there is as yet no albumen or other signs of renal malady; the cases with marked, the cases without as marked, cardiac lesion receive their ready explanation. They cease to be objects of wonder; the mischief wrought by the general malady has been wrought more elsewhere than in the kidneys. It may exist to a greater, it may exist to a less degree in any structure; it may be diversified in a very varying degree; and be present in parts in very alterable proportions.

These conclusions I draw more particularly from a study of the pathology of the contracted kidney. Perhaps it would be better to limit them to this condition, and to call this general malady Bright's disease of the kidney only so long until some one with a genius for names gives it one we can all adopt. There may, in fact, be some of the forms of the so-called Bright's disease which are really affections of the kidney; there may be deposits or degenerative processes in the kidney simply superadded to the textural changes in the contracted organ. These intricate questions cannot be here discussed; they are, indeed, with present knowledge, beyond our solution. But examined in the light of the view which we have inquired into to-night; with each group of cases looked at by itself; with the structural alterations in other organs and parts than the kidneys, minutely inspected; with the condition of the bloodvessels everywhere, and of the nervous ganglia noted; with the antecedent changes as far as possible considered; it may be then that other groups will stand forth separately as showing diverse general states as their basis.

No pathological research in these days of keen induction stands long by itself. No view can be even approximately proved that we do not at once begin to search how, as practical physicians, we can make it available for the prevention or cure of disease. That the treatment of Bright's disease, and of what are regarded as its complications, is not what we wish for, is everywhere felt. If lines of investigation and of thought should lead to the recognition of the malady being a general rather than a local one, and discern its starting-point, lines of practice which are in accordance will be pursued; and it is by following these lines that helpful and hopeful results will, I believe, come. As yet, even with the wish to work in that direction, we may not have the exact agents for the purpose. But science now is too resolute to halt helplessly before obstacles when once the path beyond is clearly recognized.

ORIGINAL ARTICLES.

HYDROFLUORIC ACID AS A DESTRUCTIVE AGENT TO THE TUBERCLE BACILLUS.

By E. L. TRUDEAU, M.D.,
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The treatment of pulmonary tuberculosis by inhalations of the vapor of hydrofluoric acid is essentially of French origin, and was first introduced in 1862, by Bastien, and made use of in 1886 by Charcot and Bouchard, but without attracting much attention. Later Seiler, in a communication to the French Academy of Medicine, July 21, 1885, and also Eugene Chevy, in a thesis written in the same year, reported good results from this treatment; while more recently Garcin, in a paper read before the same body, in September, 1887, warmly advocates the method as curative. In an exhaustive report, Professor Herard and his committee appointed by the French Academy, have recently confirmed Garcin's claims, and pronounced inhalations of the acid vapors capable of curing pulmonary tuberculosis "if not too far advanced." At Dr. Herard's request, H. Martin has made some experiments which indicate that this acid possesses valuable antiputrefactive and germicidal properties. In England, William Thompson, on September 12, 1887, at Manchester, drew the attention of the British Medical Association to the "intense antiseptic properties" of the fluosilicate of sodium.

Hydrofluoric acid was discovered by M. Fremy. The anhydrous acid is gaseous at ordinary temperatures, but is easily condensed into a fluid, which gives off large quantities of whitish fumes; it boils at 19.04° C., has a density of 0.988 at 13°, and does not freeze at a temperature of —40° C. It is more commonly obtained by the calcination of the hydrofluorate or the fluoride of potassium, but may be economically prepared by the decomposition of calcium fluoride (fluorspar) under the influence of concentrated sulphuric acid in excess. The undiluted vapors are highly corrosive and caustic.

The treatment of phthisis by this chemical compound was suggested to Bastien by the fact that at the glass factories of Baccarat and St. Louis, the vapors of hydrofluoric acid, constantly used in etching, far from injuring the phthisical workmen exposed to them, seemed beneficial to their malady. Garcin places his patients for an hour daily in a small room or cabinet into which he forces air pre-

viously passed through a solution composed of one part of acid to three parts of water, held in a gutta-percha bottle; this acidulated air is mixed with the atmosphere of the cabinet in varying proportions according to the patient's susceptibility, from 20 to 30 litres to each cubic metre being considered sufficient. Perhaps the most convenient method, and the one which I have employed, is as follows: Having made a small room, in which the patient sits, as air-tight as possible, a lead crucible containing from one to two teaspoonfuls of the acid is placed in a tin vessel holding hot water, under which an alcohol lamp is kept burning; the amount of vapor evolved will depend on the amount of heat applied, which can be regulated according to the patient's tolerance.

The inhalations, when properly diluted, have produced no bad effects in any case, and are not contraindicated even when a tendency to hæmoptysis exists. It is probable that little systemic absorption occurs, as workmen in glass factories often pass many years breathing the fumes without any ill effect on their health. Garcin subjected 100 phthisical patients in all stages, for one hour daily, to this treatment, with the following results: 35 cures, 41 ameliorations, 10 deaths, and 14 with no effect. Under their use it is claimed all the symptoms undergo rapid amelioration the tubercle bacillus itself disappearing from the expectoration.

The hydrofluoric acid treatment is a natural outcome of the recent advances in the etiology of tuberculosis, and its avowed aim is the direct destruction of the tubercle bacillus in the air-passages. An agent capable of accomplishing this has long been the desideratum of many recent investigators, who have thought its discovery might materially advance the therapeutics of this disease. Leaving, therefore, the clinical and therapeutical aspects of the question to future investigation, the present research has been directed solely toward determining what destructive power, if any, hydrofluoric acid possesses over the tubercle bacillus, and the evidence obtained is herewith submitted. In the first experiments liquid solutions were employed, while in the others dilutions of the vapors with atmospheric air were tested.

Liquid Solutions.

Experiment I.—Into five sterilized watch-glasses 5 c.c. of the following solutions of hydrofluoric acid are poured: 1 : 100, 1 : 200, 1 : 400, 1 : 800, 1 : 1600. From the surface of four blood-serum tubes covered with a rich growth of the tubercle bacillus some cultures are scraped, and with these three fresh tubes are planted, and two rabbits inoculated in the right lung and kept as controls. The remaining bacilli are then equally divided, added to the five solutions of acid in the watch-glasses, and well stirred. They are allowed to remain thus immersed for one hour, when larger bits of the culture are picked out with a platinum needle, and plants from each watch-glass are made on two blood-serum tubes. the remaining bacilli are allowed to settle to the bottom of the vessels, the excess of acid solution drawn off with a pipette, and sterilized water added in its place, the whole again stirred and 2 c.c. taken from each solution in Koch's syringe and injected into the right lung of two healthy rabbits. All the tubes are labelled and placed in the thermostat, while the inoculated rabbits, together with the controls, are put in a large pen and well cared for.

February 23. The three control tubes are covered with growth. All the other tubes remain sterile, except those subjected to the 1 : 1600 solution, which show a perceptible growth.

The two control rabbits died February 21st and March 2d, and both present the usual lesions of advanced pulmonary tuberculosis. Cover-glass preparations, stained with fuchsin, show bacilli, and a pure culture of the tubercle bacillus is obtained by planting serum tubes with scrapings from the lesions.

25th. Two of the animals injected respectively with the germs exposed to the 1 : 100 and 1 : 200 solutions were found dead. The autopsies show in both extensive fibrinous exudation in the right pleura and gangrene of the lung. The diseased tissues were friable, of a uniform gray color, and present nowhere either tubercles or caseous spots. Several cover-glass preparations, made from scrapings of the cut surfaces of these lesions, show no bacilli; a number of tubes planted from the same source, at the end of three weeks, show no growth of tubercle bacilli; several of them are putrid.

In inoculating the rabbits on February 8th, in two of them the solutions of acid containing the bacilli were injected without first drawing off the excess of acid and replacing it with water. This precaution was only taken when the violent reaction at once caused in these animals by the injection was noticed. The above facts, when taken in connection with the autopsies, leave little doubt that these two deaths were due solely to the corrosive action of the acid.

The ten remaining animals were apparently in good health two months after inoculation, when they were killed. In all but three of them a small fibrous scar in the middle lobe of the right lung marks the point of inoculation, but the lungs, as well as all the other organs, are perfectly free from any disease. Both the animals inoculated with germs soaked in the 1 : 1600 solutions showed slight tubercular lesions as well as one of the rabbits injected with the 1 : 800 mixture containing bacilli; the limit of efficacy for watery solutions may, therefore, be fixed at between 1 : 400 and 1 : 800.

Acidulated Air.

Experiment II.—*December 28, 1887.* A small bit of linen cloth attached to a platinum wire is first sterilized, then dipped on the condensation water of a tube containing a culture of the tubercle bacillus, and rubbed over the germs growing on the surface of the serum. It is then withdrawn, and from it

two tubes are planted in the usual way, and kept as controls. The wire with its rag is then inserted into a small round glass cylinder, corked at both ends with cotton wadding. Through this cylinder a current of atmospheric air, previously allowed to bubble through a 1 : 3 solution of hydrofluoric acid and water, held in a gutta-percha bottle is steadily passed for one hour, the necessary pressure being obtained from a compressed air apparatus attached to the gutta-percha bottle. At the end of an hour the wire and rag are withdrawn and rubbed on the surface of four solidified serum tubes. These, together with the controls, are put in the thermostat.

January 18. The controls are covered with growth, while the other tubes have remained sterile.

20th. The surface of the sterile tubes is scraped, and replants made from all of them.

February 14. No growth has appeared in any of the replants.

This experiments was repeated a month later, with the same results.

Experiment III.—*December 28, 1887.* Tubercle bacilli are mixed with sterilized water, and from this liquid two control tubes are planted, and two control rabbits inoculated in the right lung. The remainder of the liquid containing the germs is then subjected to a stream of air previously passed through a 1 : 3 mixture of hydrofluoric acid and water, the acidulated air being allowed to bubble up for an hour through the water in which the bacilli are floating. At the expiration of that time several tubes are planted with the cultures thus treated, and into the right lung of three rabbits two centimetres of the liquid which holds them are injected.

January 18. Controls show growth, while no change has taken place in the other tubes.

February 10. Control rabbits are killed, and show the usual lesions of moderately advanced pulmonary tuberculosis.

15th. Two of the rabbits are killed, and their lungs, as well as the other organs, found free from disease.

March 15. The third rabbit is killed, and all the organs are found normal.

Experiment IV.—Planted four serum tubes as nearly as possible with the same quantity of a culture of the tubercle bacillus. Two of these are subjected every other day, for ten days (five applications), to a current of air laden with the hydrofluoric acid vapors, as follows, while the two others act as controls. All the tubes are kept in the thermostat together; every other day the ones to be experimented on are quickly removed to another oven, heated at 38° C., and while there a current of air previously passed through a 1 : 5 solution of hydrofluoric acid in water is directed through a glass pipette into each tube for half an hour. At the expiration of this time they are removed to the thermostat and kept with the controls.

March 24. Controls show growth, and other tubes appear sterile.

The albumen in the serum, when exposed to the acid vapor, becomes firmly coagulated, as shown by its whitish color and loss of transparency, beside the acid reaction produced in the culture medium of itself may inhibit the growth of the microbe on its surface without destroying it. To avoid as much as possible this source of error, on March 24 the surface of the sterile tubes is scraped, and replants from each made on freshly stiffened serum.

April 16. Replants show no growth.

This experiment was repeated several times, the solutions of acid and water being diluted each time, and three applications in all being made, with a day intervening. The dilutions used were 1 : 7, 1 : 9, 1 : 16, 1 : 30, 1 : 50. The limit of efficiency was reached at 1 : 50, luxuriant growths taking place after one application only of air passed through a solution of this strength, while a hardly perceptible growth occurred if the process was repeated three times. The other tubes remained sterile, as well as replants made from them.

As septic and putrefactive processes play so important a part in the progress of pulmonary phthisis, the following test of the influence of hydrofluoric acid vapors over the bacteria of putrefaction is made.

Experiment V.—*March 13.* A rag attached to a platinum wire is dipped into some putrid blood, and from this two control tubes, containing liquid serum, are planted. The rag is then placed under a bell-jar of a capacity of 1500 cubic centimetres, and to the centre of the glass, on which it rests, a bit of sheet lead, holding 0.20 of hydrofluoric acid, is pushed. The acid is vaporized by gentle heat, and the rag with its bacteria is left, exposed to the vapors for one hour. At the expiration of this time it is withdrawn, dipped successively in three liquid serum tubes, and these, together with the controls, are put in the thermostat.

18th. Controls putrid, other tubes unchanged; a drop of blood taken from each control stained with fuchsin, and examined under the microscope, shows innumerable bacteria; a drop from each of the other tubes, similarly treated, shows no bacteria.

The same experiment was repeated March 20, except that 0.15 of the acid was vaporized under the bell-jar instead of 0.20, all the conditions remaining the same.

24th. Controls putrid, and other tubes unchanged.

26th. All the tubes are putrid, and drops from each, placed under the microscope, show bacteria. Thus one part of acid, vaporized in 7500 of air, is the smallest quantity that will effectually destroy putrefactive bacteria after an hour's exposure.

Experiment VI.—*March 3.* Four rabbits are inoculated in the right lung, and under antiseptic precautions, in the anterior chamber of the right eye with a pure culture of the tubercle bacillus. Two are daily subjected to inhalations of hydrofluoric acid vapors as follows, while two are kept as controls; the purpose of the eye inoculations being to note in the living animals, by comparison with the controls, any influence that might be exercised on a distant lesion by the systemic absorption of the acid inhaled, while the lungs at the autopsies are to demonstrate any effect produced by the more direct contact of the vapors. The rabbits to be experimented on are placed daily for three hours in a large, nearly air-tight box, into which acidulated air is conveyed by

means of a rubber tube tightly fitting a hole cut in the middle of the box. This rubber tube is directly connected with the gutta-percha bottle holding the acid solution, through which a condensed air apparatus forces a current of air. All the animals are kept together under the same conditions, except when those to be subjected to the treatment are placed for three hours daily in the box described above. The strength of the solution by which the air is charged varied somewhat, but most of the time was above 1 : 5. The rabbits appeared to experience no ill effects from their sojourn in those strong vapors. The ocular disease progressed so uniformly, and with such slight variations in all the animals, that the following record, taken from the notes made at the time, will answer for both the controls and the subjects of the experiment.

6th. The operation has been successful in every case, the cornea remaining quite clear ; a few whitish specks of lymph are seen in front of, and around the edge of the pupil.

12th. Small tubercles visible on the iris.

18th. Cornea beginning to grow cloudy.

20th. Many small white dots (tubercles) are apparent in the substance of the cornea. Iris tubercles growing cheesy, diffuse inflammation of the iris is noted.

27th. Cornea becoming vascular.

31st. Slight bulging of corneal wound, which is becoming cheesy.

In one of the rabbits subjected to the inhalations no tubercles were made out on the iris, but they are plainly visible on the cornea. The character and extent of the lesions varied no more in the other animals than could easily be accounted for by the slight but unavoidable differences in the amount of virus introduced. Thus no appreciable effect was produced by the treatment on distant lesions. On the disease in the lungs with which the vapors were brought in close contact the results were as follows :

April 9 The controls are killed and both show besides the ocular tuberculosis, described above, the usual appearances of advanced pulmonary tuberculosis. Tubercles are found scattered everywhere over the pleura and invade the parenchyma of the right lung in many places ; the middle lobe of this organ, which has been pierced by the needle, being almost completely solidified. Many cheesy spots are to be seen both on the pleura and on the cut surfaces of the pulmonary tissue. Frozen sections in the microtome, stained with hæmatoxylin, show tubercular deposits in the middle and lower lobes of the lung.

One of the rabbits subjected to the inhalations was noticed to suffer from diarrhœal symptoms on March 27th and died March 28th. The abdomen was retracted, the intestines congested and empty, but no tubercle was found in the abdominal cavity. On opening the chest, tubercles are seen freely scattered over the surface of the visceral and parietal pleura, a few of which are becoming cheesy. The left lung is sound with the exception of a small eruption of minute tubercles at one spot on the pleura. Sections made through the right lung show no solidification nor cheesy spots or any tubercle anywhere, except in the immediate vicinity of the point of inoculation in the middle lobe, around which some solidification is present. At the distance of a few millimetres from this point, however, the pulmonary tissue appears normal. Fresh sections made on the freezing microtome through the pulmonary parenchyma at various distances, and stained with hæmatoxylon show under the microscope no tubercle, except in the immediate vicinity of the needle thrust in the middle lobe.

The other rabbit remained in excellent condition and was killed April 5th. The autopsy gave about the same results as that of his mate, the same pleuritic lesions are present, but more of the pulmonary parenchyma is involved. Frozen sections stained with hæmatoxylon show under the microscope some tubercle at a greater distance from the point of inoculation than in the preceding animal, but still nowhere as extensive as in both controls, and none in the lower lobe. Bacilli are present in the existing lesions of both these animals.

In comparing the autopsies all that can be said is that whereas no difference exists in the extent and character of the pleural disease, less tubercle has invaded the lung tissue proper in the animals subjected to the inhalations. The direction taken by the disease might in so small a number of cases be purely accidental, and no satisfactory conclusion can be arrived at from the result of this experiment, the proof being insufficient and of a somewhat uncertain character.

The evidence obtained by the first four experiments warrants the assumption that hydrofluoric acid, even when quite freely diluted with both water and air, is capable of destroying the tubercle bacillus, and indicates that even weaker dilutions than were employed might prove efficient to this end if oftener applied. The influence exercised by this chemical compound over putrefaction is demonstrated by Experiment V., while its therapeutic value is left undetermined by Experiment VI.

To what extent the above facts can be utilized in the therapeutics of the disease, future observation must determine. Dilute solutions of the acid, or, if these prove too caustic, of its sodium and ammonium compounds, which have been found by H. Martin much less irritating, might be tested in surgical tuberculosis with advantage. In the treatment of the existing lesions of pulmonary phthisis the hydrofluoric inhalations would at least possess over the antiseptic sprays, already in use, the advantages of tested efficiency and greater penetrability. It is evident, however, that even if the acidulated air could be breathed without injurious effects in dilutions which have been found to be efficient, but a small proportion of the bacilli, namely, those lying directly in contact with the atmospheric air, could thereby be destroyed while no antagonistic effect on those imbedded in solidified areas of lung, tubercular nodules, or diseased glands could be hoped for.

An excellent illustration of the inefficiency of antiseptics beyond their point of actual contact is given by the autopsies in Experiment VI., which showed the course of the tubercular pleurisy to have been entirely uninfluenced by the daily inhalations to which the animals were subjected.

It should be kept in view that so long as the tissues present a favorable nidus for the development of the bacilli, the destruction of a portion of them, if this should be found feasible, would not necessarily eradicate the disease. It is not likely that hydrofluoric acid can alter those chemical and vital changes in the organism which allow of the growth of this microbe, and to this end thus far those conditions which promote bodily vigor have alone been found effectual. The recommendations of the method however are, that its application is easy and does not interfere with the employment of hygienic and climatic treatment, and that by it we may hope to diminish the amount of virus against which the organism has to contend. Whether this hope will be realized, an extended clinical application of the treatment alone can determine.

A SUPPLEMENTAL ACCOUNT OF THE CASE OF A BEARDED WOMAN IN WHOSE BEHALF ELECTROLYSIS WAS FIRST EMPLOYED FOR THE DESTRUCTION OF THE HAIR PAPILLÆ.

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The case to which I wish to recall attention was published some years ago, and possesses considerable interest in two respects. In the first place, the young woman who is the subject of this communication, was the unfortunate owner of a beard that for strength and luxuriance rivalled the hirsute appendages of any man, and, secondly, she is the first woman ever operated on by electrolysis for the removal of "superfluous hair."

Under the title of "Case of a Bearded Woman," published in the *St. Louis Medical and Surgical Journal* for November, 1877, I gave a tolerably full account of the development and peculiarities of the abnormal growth of hair in this patient, but, to add further interest to the subsequent history, I shall take the liberty of making some brief quotations from the original article:

Miss X., twenty-two years of age; her general, mental, and physical characteristics are essentially feminine, and up to the age of eighteen there had appeared nothing to indicate her subsequent deformity. But about this time downy hairs began to be observed, and before a great while all the ordinary sites of the beard were occupied by this growth, which was of light color and silky texture. At this period she consulted a medical man, who advised a depilatory powder, stating that it would permanently remove the obnoxious hairs. As a matter of course, the result was disastrous. From the repeated stimulation thus obtained the hairs soon became stiff and strong, the color deepened to a dark brown—almost black—and her beard became thicker and more profuse than is usual even with men.

For the further features of the case, and the references to the method of treatment adopted, I shall quote literally from my original paper, merely omitting unimportant details:

"The beard grows thickly and evenly on the lip, chin, cheeks, and in the submaxillary regions. The growth extends over the malar bones as true beard, and not, as is ordinarily seen, in the form of lanugo. There is no other abnormal growth of hair on the body or limbs. . . . The hair of the head is black, of fine texture, in ordinary amount, and quite long. There is nothing peculiar about it. . . . Miss X. has never shaved, but for the last three years has used a dipilatory powder. To give an idea of the heaviness of the young lady's beard, I have often noticed, that after it had been closely taken off, the skin retained that blue-black color frequently seen in men with very dense beards after shaving. The beard is never allowed to grow more than a quarter of an inch in length, so that I am unable to state how long it would become if unmolested, but I presume, from all the indications, that it would be patriarchal in its proportions."

After having given some few other details in regard to the family history of the patient, etc., I introduced the subject of treatment in the following words:

"The radical cure of hirsuties by electrolysis is brilliant in its results, as it is only in this way the hair papillæ can be destroyed, thereby absolutely preventing a regrowth of the hairs."

In concluding the article, I called attention to the fact that my friend, Dr. Michel, had been using this method for four or five years in trichiasis and distichiasis, and I promised to give a detailed description of this process in its application to dermatological work at an early day.

At the time I made my report I had removed 248 hairs from Miss X.'s face by the electrolytic method, and subsequently, at irregular intervals, I took a considerable number more. In 1882, being pressed with a great deal of business of the same sort, I was fortunate in securing the assistance of Dr. Nelson, who has kindly furnished me with the following account of his observations in her case:

"I have no record of the number of hairs removed from her face, but I commenced the treatment August 10, 1882, and ended it in February, 1885. During the first part of this period I saw her once, twice, or three times each week. During the latter months she came four to nine times a week, and each séance lasted from one to two hours. There were about three hundred and fifty séances, and the number of hairs removed at each séance would vary from thirty to one hundred and fifty. After terminating the regular treatments in February, 1885, Miss X. returned in April and had eleven treatments, in July

she had seven, in September five, and in July, 1886, she had three, since which time I have not seen her.

"I think the result of the treatment conclusively demonstrated the efficacy of electrolysis in the relief of hirsuties. I should say that this patient's beard, if allowed to grow, would have been a full, strong beard for a man. It was very dark, almost black in color, and constituted a very serious deformity.

"I believe the final result to have been thoroughly satisfactory to Miss X., inasmuch as her face was considerably marked by variola: of course, the complexion was not smooth, but she was free from the annoyance of the hair when I last saw her, some eighteen months ago."

I think the result in this case may be very justly regarded as exceedingly happy and satisfactory, and it is a source of much gratification to me to know that similar successes are now being obtained every day by dermatologists all over the world.

In 1878, at the second annual meeting of the American Dermatological Association, having in the meantime had considerable further experience in the electrolytic procedure, I wrote a formal paper on the subject, since which time I, and many other dermatologists, have contributed a number of special articles on this method to the medical press of this country and Europe.

Since I first began work on Miss X., I and my assistants have destroyed many thousands of hair papillæ, and although I have seen women with very formidable growths of facial hairs, it has not been my fortune to encounter a similar case, and I sincerely trust that I never shall.

While no one now disputes the feasibility of the operation, I can remember very distinctly that when I began this work the general statement of the text-books was that the radical treatment of such cases was unavailing, and that the pincers, the razor, or the depilatory were the only palliatives.

I may be excused, in this connection, a brief, practical digression. I have heard it occasionally stated that the hairs will return after the operation. Long since to test this matter I operated in marked limited areas, such as in hairy moles, etc., and when the work has been *expertly* done, I have failed to see the hairs reappear, and it certainly must be confessed that in the case recorded above we have obtained a result as remarkable as it is gratifying.

Poor operators do not get as fair results as good operators, and in regions thickly set with hairs the best operators must expect a certain proportion of failures on the first going over; and, furthermore, with some patients the hairs come away readily, while in others great difficulty is experienced.

Then, again, in a large number of instances an active state of hair production is going on when the patient comes for treatment, and often continues for an indefinite period, so that a case is seen time and again for years. On the other hand, when this tendency has exhausted itself the removal, when once accomplished, is accomplished for good. Such is evidently the case with Miss X. It is possibly true that the fine downy hairs interspersed between the operable ones are stimulated to a lustier growth by the electrolytic depilation, but of this I am not quite convinced: but even if this does occur, it makes very little difference, as in time they would assume larger proportions, even if left alone, and would have to suffer ultimate removal.

A MODIFIED STAFF FOR THE OPERATION OF LATERAL LITHOTOMY.

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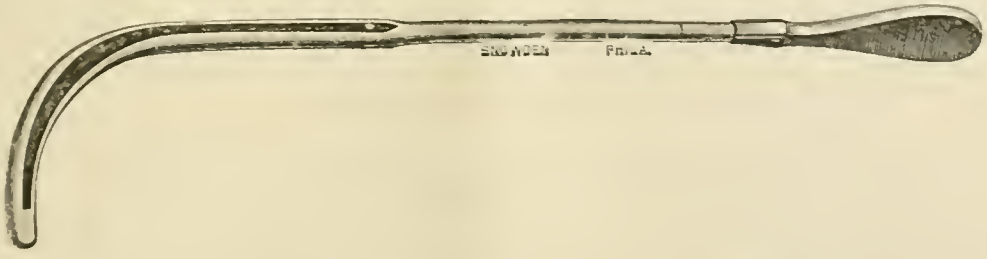
In the operation of lateral lithotomy, a failure to enter the bladder properly has often happened. Such a mischance not only causes painful embarrassment and mortification to the surgeon, but may lead to urinary infiltration, pelvic cellulitis, and not infrequently to the death of the patient. This accident is not an imaginary one: it is frequently mentioned in the books, and I have seen it take place more than once at the hands of prominent surgeons.

The error in the operation may be regarded as twofold: *First*, the incision in the urethra may be insufficient; and, *second*, the recto-vesical space may be divided and opened up. The operator believes that he has entered the bladder, and with his forceps searches for the stone. In reality, he is groping behind the bladder, and becomes more bewildered every moment, perhaps vaguely feeling through the vesical wall a stone which he cannot grasp.



I am satisfied that this failure to reach the bladder may be accounted for in two ways: *First*, from an uncertain holding or direction of the staff, on the part of the staff-holder, by which the end of the staff

is tilted out of the bladder, and the point of the knife is thus misdirected backward. *Secondly*, it may happen that when the knife is thrust along the staff, it may fail to take the curve, but may leave the groove at a tangent, slip downward and backward, and thus open up the post-vesical space. This slipping of the knife is favored by the construction of the lateral groove, which is usually such that the knife must hold its position by the pressure of its point against the staff. To obviate this difficulty, and to support the knife blade in its traject, I some years ago modified my left staff, by widening and bringing up the inferior lip of the groove in a spiral manner, so that this may form a shelf upon which the end of the knife may rest, and along which it may be thrust unerringly and safely into the bladder. An actual experience in many lithotomies has satisfied me of the advantages of the staff thus slightly modified, and I believe that by its use a high degree of certainty in the operation, and of confidence to the operator may be insured.

In the accompanying cut a representation of the modified staff is given.

MEDICAL PROGRESS.

The Technique of Intestinal Injections.—QUINCKE is quoted by the *Deutsche medicinische Wochenschrift* of April 5, 1888, in his description of methods of intestinal injections which he has recently found useful. In place of the hard tip which is ordinarily used on enema syringes, he substitutes a soft flexible nozzle about eight to eleven inches long, and of convenient calibre. The tip is slightly harder than the rest, and has two lateral openings; the external end is dilated somewhat, the whole resembling an œsophageal tube. It must be perfectly smooth, and of the best rubber. The insertion of such a tube is far less painful than the use of the ordinary tip. It may be ordinarily inserted two or three inches, but when necessary may be passed four or six inches without injury. This tube may be very easily cleansed, soap and water and carbolic acid sufficing to disinfect it thoroughly. An injection of oil may be readily given by filling the dilated external extremity with oil, and then attaching the irrigator tube; the water from the irrigator will force the oil before it into the bowel. In obstinate tympanites the tube may be allowed to lie in the bowel for an hour or more, securing the free exit of gas. Quincke secures the retention of a considerable quantity of water high in the bowel by a very ingenious device which consists in attaching to any convenient portion of the tube a collapsed rubber balloon two inches in diameter when inflated. This balloon may be filled with water by its own small separate tube. When introduced to the desired height, the nozzle aperture is free above it. The balloon is then filled with water, occluding the bowel; the desired injection is then introduced beyond it, and as much fluid as desired is thrown in at the desired level.

The Treatment of Ingrowing Nails.—PATIN is quoted by the *Centralblatt für Chirurgie* of April 7, 1888, as advising the following method of treatment:

After carefully cleansing the affected foot, he paints the granulations beneath the ingrowing nail with a solution of gutta-percha, 10 parts; in chloroform, 80 parts. This application is repeated as often as possible, and results in gradually raising the nail from the flesh, which heals under the protection of the film of gutta-percha.

Aconitine and Digitaline.—The *Revue Gén. de Clin. et de Thér.* of March 22, 1888, gives the following formula for the use of these alkaloids:

Digitalin.	gr. ⅙.
Sacchar. lact.	ʒ i.
Gummi Arab.	gr. 15.
Glycerin. et aq.	q. s.

To be made into 100 granules.

The Use of Antipyrin during Labor.—At a recent meeting of the Academy of Medicine of Paris QUEIREL reported that he had used antipyrin as an analgesic during labor in 15 or 20 cases, with excellent results. A hypodermatic injection of four grains was often given, and repeated without inconvenience. During the period of dilatation of the cervix the effect of antipyrin was especially good; the progress of labor was not retarded, but accelerated. Labor pains occasioned much less suffering, while the contractions of the uterus were rendered more vigorous. —*L'Abeille Médicale*, March 19, 1888.

Milk Jelly and Milk Powder.—The *American Druggist* for April, 1888, gives the following directions for preparing these milk foods:

As a variation in milk diet, the following is recommended by Professor Liebreich:

Heat one quart of milk with one pound of sugar, and when the sugar is dissolved continue the heat, at a boiling temperature, for about ten minutes. Now cool it well, and then add, *slowly* stirring, a solution of one ounce of gelatine in a cupful of water. Next add the juice of three or four lemons and three wineglassfuls of wine, brandy, or other liquor. Set the glasses containing the mixture in a cold place, so that the contents may gelatinize. It is necessary to have the milk quite cold before the other ingredients are added, as it would otherwise curdle.

Dried milk, in the form of powder, may be prepared by evaporating skimmed milk in a suitable apparatus, preferably in vacuo and under continued stirring, at a temperature of 60° to 70° C. (140° to 158° F.) to a syrupy consistence, then mixing it with 30 to 50 per cent. of its weight of finely powdered sugar, and continuing the heat, with constant stirring, between 30° and 55° C. (86° and 131° F.) until the product has assumed a dry, granular condition.

The Disinfection of Vessels Containing Tuberculous Sputum.—GRAUCHER, at a recent meeting of the Society of Hygiene and Public Medicine of Paris, reported experiments which he had made upon the best methods of disinfecting vessels containing tuberculous sputum. He employed carbolic acid, 1 to 20; caustic potash solution, 1 to 20; sulphate of copper, 1 to 20; chloride of zinc, 1 to 20; and bichloride of mercury, 1 to 100. Of these bichloride of mercury only was efficient. In disinfecting sputa, water at a temperature of 212° F. was found efficient in destroying the tubercle bacilli.—*Le Progrès Medical*, March 31, 1888.

Cold Baths in Typhoid Fever.—The Paris correspondent of the *Medical Press* of April 11, 1888 writes that at the last meeting of the Société des Hôpitaux M. Richard brought forward the subject of treatment of typhoid, in which were included cold baths. He had recently seventy-six cases under his care, of which thirty-eight were treated after Brand's method and the remainder in the ordinary way. Of the first category only two died, while he lost four in the second. The cold baths, he found, were always very agreeable to the patient; the delirium, stupor, and sleeplessness disappeared almost completely. Bronchitis need not be considered as a counter-indication to the treatment, as several times he did not hesitate to order the baths with every symptoms of the lung affection, and he never had any evil result. The temperature of the baths varies from 65° to 68° F., and they are administered between six in the morning and eleven in the evening. Each patient was bathed every three hours if his axillary temperature exceeded 99.5° F., and in grave cases every two hours. The average number given daily was five, of a quarter of an hour each. Cold affusions were practised on the head during the bath, and a glass of cold water was given him to drink. Two or three spoonfuls of good wine were drunk by the patient after each *séance*. M. Barth said that the danger of the Brand method consisted in the pneumonia which he frequently witnessed as a consequence of the immersion, but such was not the opinion of M. Renoy, who declared that statistics, on the contrary, proved that pneumonia is much less frequent in patients treated by cold baths than in those treated by other methods.

Papayotin in Diphtheria.—The *American Druggist* for April, 1888, gives the following formula:

Papayotin.	75 grains.
Distilled water	90 minims.
Glycerin.	½ fluidounce.

For local application to diphtheritic membranes by means of a camel's-hair pencil.

Tannin in the Treatment of Tubercular Diseases.—At the fifth meeting of the Societâ Italiana di Chirurgia, recently held at Naples, PROFESSOR ANDREA CECCHERELLI, of Parma, drew attention to the value of tannin in the treatment of local affections of tubercular origin. From experiments which he had made on animals, and from clinical experience, he believed it to be a powerful antiseptic, with a specific power of destroying the tubercular virus. He found that the addition of tannin prevented the putrefaction of animal tissues and fluids, and that decomposition was very considerably delayed in the bodies of animals which, while alive, had undergone a course of treatment with tannin. He had also found that whilst he could produce tuberculosis in certain animals by the injection of phthisical sputa, or of tubercle bacilli, the injections produced no bad effect when tannin was injected simultaneously, or was given internally every day for some time. He had treated twenty patients suffering from tubercular diseases with tannin, both externally and internally, with very satisfactory results. He, therefore, looks upon tannin as an excellent remedy in tubercular affections of the bones and joints; under its influence ulcers heal kindly, any tubercular formations that may already exist are destroyed, and generalization of the disease is prevented. Dr. Ceccherelli considers that tannin is much superior to iodoform in the treatment of tubercular disease, besides having the further advantage of being perfectly harmless.—*British Medical Journal*, April 7, 1888.

Hydrosalpinx Treated by Apostoli's Electrical Method.—APOSTOLI, of Paris, in a recent clinical lecture, exhibited a case of salpingitis which he had treated by galvano-puncture, on two occasions, with a diminution of the hydrosalpinx present and an improvement in the patient's general condition. He considers the method of treatment by the galvano-cautery a most valuable procedure in non-suppurating inflammation of the uterine appendages, and regards penetration of exudates in the vaginal cul-de-sac through the vaginal wall a proper procedure, with antiseptic precautions and rest for the patient.—*Revue de Thérapeutique*, March 15, 1888.

The Treatment of Bronchitis.—The *Therapeutic Gazette* of April 16, 1888, in an editorial on this subject, gives the following formulæ:

For the acute stage:

R.—Potass. citrat.	℥j.
Suc. limonis	f℥iss.
Syr. ipecac.	f℥ss.
Tr. opii camph.	f℥iij.
Syrupi . . . . q. s. ad	f℥iij.

S.—Dessertspoonful every two hours.

After the acute stage:

R.—Ammonii chloridi,	
Ext. glycyrrhizæ . . .	āā ℥iss.
Glycerini	f℥ss.
Mucil. acaciæ	f℥ij.
Syrupi,	
Aquæ . . . . āā q. s. ad	f℥iij.

S.—Dessertspoonful every two hours.

Dermepenthesis, or Animal Skin-grafting.—CARDOGAN-MASTERMAN, in the *Provincial Medical Journal* of April 2, 1888, reports the following case of successful grafting with rabbit's skin:

A middle-aged tradesman, who had been drinking to slight excess for some years, came to me with a recent traumatic orchitis. The pain and swelling were excessive, so morphia was given, three leeches applied, and an ice-bag. In the night acute *delirium tremens* developed, and when violently struggling to escape from the grasp of two neighbors, who were trying to put him in bed, the swollen scrotum was severely bruised—I think knelt upon—by one of the men. The next morning it was black and cold. Poultices were applied, and so on, but in a day or two the whole of the integument sloughed away from the root of the penis to the perineum, leaving the pouch of the testicles exposed, and covered only by the pale pink lattice of the *cremaster* muscle. When the wound had been cleaned, there was a border of but half an inch wide of the scrotum left in a healthy condition, and the case was complicated by the extremely bad condition of the patient's health generally, and extensive bedsores. I found, however, that a circular piece of skin, two inches in diameter, would just cover the testicles; and, with little

hope of success, again tried the rabbit as its source. A young one was procured, the area marked out with ink on its previously clipped abdomen, the animal killed by a blow on its neck, and the piece of skin rapidly dissected off and applied on the clean wound surface, pressed closely down, covered with a piece of lint dipped in hot water, and then with a fair-sized linseed-meal poultice. The latter was, in turn, kept hot without removal by an India-rubber hot-water bag, which was frequently emptied and refitted. At the end of forty-eight hours the transferred skin was cautiously examined, and found to be adherent. A fresh poultice was applied and reinforced as before for three days longer, when the outer layer came away with the fur, leaving a firm, smooth integument, looking more like the mucous lining of the lips than ordinary skin, and when I last saw it so it remained.

Cancer Treated by Erysipelas Inoculation.—The *Lancet* of April 8, 1888, writes as follows on this subject: That an attack of erysipelas will often profoundly modify, or even cure, another disease which may be present in the subject at the time has long been known; but it remained for Busch and Fehleisen deliberately to expose patients suffering from malignant growths to the action of the virus in the hope of curing the graver malady; Fehleisen's were the first cases in which the virus was inoculated, and his cases served as subsidiary confirmation of the pathogenic character of the streptococcus which he had isolated, and cultures of which were employed in his inoculations. The method, he remarks, is naturally only to be thought of when the malignant growth is beyond the reach of operative removal. (See "Memoir on Erysipelas," in the selected essays published by the New Sydenham Society, 1886.) The most recent adoption of this measure is that recorded by Dr. Axel Holst, of Christiania, in the current number of the *Centralblatt für Bakteriologie* (No. 13).

The patient was a woman, aged forty, who had a recurrent carcinoma of the left breast, for which she declined further operation. In a few months the cancer had infiltrated the greater part of the surface of the right half of the chest, forming a red brawny mass, with a raw surface, nodulated on the margins, whilst the axillary and clavicular glands were much enlarged, and the upper limb œdematous. In spite of the unfavorable aspect of the case, it was decided to try the effect of erysipelas inoculation. Accordingly, on August 10th last, the inoculation was performed by scarification of the raw surface, the cultures used being the fifteenth generation (in peptone agar-agar) from a case of erysipelas nineteen months and a half previously. Beyond a slight rigor next day, no effect followed; and it was further found that the material gave no result when inoculated in a rabbit's ear.

Dr. Fehleisen was applied to, and on the 22d the material he sent was inoculated in several parts of the diseased surface, and this time with success. After twenty-one hours the patient had a series of rigors followed by the appearance of an erysipelatous blush, which, within thirty hours, extended over the whole right arm, and later spread to the left side of the chest, back, and even to the left arm. In a few days the erysipelatous area was confined to a margin from one and one-quarter to three inches in width; and on the seventh day the fever, which throughout had not been high, fell by crisis. At the end of four months and a half the erysipelas still persisted on the right arm, but the patient had manifestly lost ground.

During the first two months and a half the progress of the cancer appeared to be arrested, and for some distance the wound had healed over, whilst the induration had become less marked. But the right arm still remained œdematous, and after the period named the ulceration broke out afresh, the supraclavicular glands again increased in size, and fresh nodules appeared, one in the left breast. The inoculation had, then, probably prolonged life, for the arrest in the progress of the cancer was marked; but it may well be that the patient's loss of strength and of appetite (which prior to the inoculation had been remarkably good) were due to the erysipelas, which persisted on the right arm to the end. To us it seems that the case was hardly a suitable one for this treatment, which, at any time must, to say the least, require some courage to adopt.

The Treatment of Aphthæ.—Hirtz prescribes the following:

Aquæ destill.	parts 8.
Tinct. coca	parts 2.
Sodii salicylat.	parts 2.

The mouth should be cleansed with this mixture, on soft cotton, five or six times daily.—*Revue de Thérapeutique*, March 15, 1888.

Surgical Morality.—The *Medical Press* of April 4, 1888, writes very appropriately on this subject as follows:

A pernicious practice obtains among surgeons of publishing only their successful cases. Not only is the practice not strictly honest, but it inflicts positive harm, seeing that the result may be to mislead their readers as to the value of this or that procedure. This is particularly striking in the matter of wiring fractured patellæ. The medical journals are continually publishing cases which certify to the satisfactory results obtained, but we do not remember to have seen one for a long time in which the risks and disadvantages of this somewhat heroic treatment are set forth. Yet it has occurred to our knowledge that in the practice of one surgeon at least two cases recently developed very severe inflammatory symptoms as a sequel to the operation, which, in one of them, proved fatal. Now the inconvenience caused by an imperfectly united patella is, after all, but small, and a mortality of even one per cent. would suffice to render the operation unjustifiable; at any rate, without placing the patient in full possession of the arguments for and against surgical interference. Too many men are blind to the fact that often the greatest amount of information is to be learned from the unsuccessful cases. To ignore non-successes is, moreover, to act in an unscientific and reprehensible spirit, for no true surgeon could, or ought to wish to perpetuate a method which can only be made popular by "cooking" the statistics.

Salol Collodion for Fissured Nipples.—The *Gazette de Gynécologie* of March 1, 1888, gives the following formula:

Salol,	
Ether	āā ʒ 1.
Dissolve and add	
Collodion. flex.	ʒ 7½.

The Medical News.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, MAY 5, 1888.

THE RELATION OF HEART AND KIDNEY AFFECTIONS.

EVER since Bright's memorable observations, the connection between heart and kidney affections has been the subject of much speculation and study, and with an increasing knowledge of the anatomical facts the interest in the question has rather heightened than waned. In the Middleton-Goldsmith lecture for this year, which we present to our readers in this number, DR. DA COSTA discusses certain important aspects of the problem.

Two main questions are offered. Does disease of the heart lead to disease of the kidneys, and what is the relation of renal affections to cardiac disease? On the first point Dr. Da Costa has a large amount of valuable material to offer, and deals with this side of the problem with a fulness which its importance merits. The results of a careful analysis of 127 cases of valvular disease show that in only 8 there was actual renal disease, amounting to more than congestion, and in not one was the kidney contracted. These clinical results contrast strongly with the post-mortem records of Delafield, quoted by Dr. Da Costa, in which of 137 cases of death from heart disease there were 27 large white kidneys, 29 atrophied kidneys, and 28 of chronic nephritis, which could not be classed as either large white or atrophied organs. The conclusion reached is, that heart disease rarely leads to chronic renal disease, but to the well-known large, firm, congested organs.

Of valvular affections of the heart, associated with disease of the kidney, there were 41 cases in 101 instances of Bright's disease (57 acute and 44 chronic). Of these 41 cases of valvular lesion 29 were Bright's cases of the chronic type, and 12 were of the acute type. In 13 of the 29 chronic cases and in 3 of the acute cases, rheumatism was an antecedent. One of the most interesting points in this connection is Dr. Da Costa's experience in 79 cases of acute Bright's disease. In only 16 of these there was valvular disease, but neither in these nor in any of the other cases could hypertrophy be determined. No support is here found for the statement of Traube, which has been very generally accepted, that even in acute nephritis hypertrophy of the left ventricle can be determined within a month or six weeks from the date of the onset. Observations on the arterial tension in these cases would have been of value.

Naturally the chief interest in this subject centres in the hypertrophy without valve lesion, which is so commonly associated with the contracted kidneys of chronic Bright's disease; and, as a rule, with extensive change in the arterial coats.

The various theories which have been advanced to explain this condition are reviewed and fonnd inadequate, and the suggestion is made that the hypertrophy as well as, to a great extent, the vascular changes are the result of a common process which takes its origin in the ganglionic system. In eleven cases changes were found in the inferior cervical ganglia, indicating atrophy and fibrosis. Dr. Da Costa believes that in a deranged nerve influence, depending upon widespread changes in the ganglionic system, a solution of the question will be found. To this general cause may be reasonably attributed the great and universal alteration found in heart, vessels, and kidneys in chronic Bright's disease. There is no inherent improbability in this view, for we know how powerfully nutrition is influenced by changes in the nerve centres, but the anatomical question cannot yet be considered as finally settled. The investigations of Hale White would indicate that the very changes here described are extremely common in many diseases, and the tendency of late has been against attributing any special importance to these alterations. The suggestion of the lecturer, however, adds interest to the whole question, and brings into prominence a hitherto neglected aspect, from the further consideration of which new light may be thrown on many of the obscure problems in the etiology of chronic Bright's disease.

CEREBRAL ACCIDENTS IN EMPYEMA.

THE reflex accidents which occur in the course of the surgical treatment of purulent pleurisy deserve more exact investigation than has been accorded them. Striking as clinical phenomena in their mildest form, they become invested with peculiar interest when we recognize in them the mechanism of that appalling sudden death which has occasionally occurred during the act of washing out the pleural cavity.

The free use of the bistoury in effecting the freest drainage of the pleura, which the antiseptic methods of modern surgery permit, has done away with the necessity for irrigating these cavities, and it is probable that cerebral accidents will become much less common in the future. The fact that grave reflex accidents may be provoked, under circumstances not to be foreseen, by injecting the pleural cavity, and even by the introduction of a sound, must lead to the eventual abandonment of these procedures. Meanwhile, the intelligent study of the subject will serve to hasten this desirable result.

The investigations of Aubouin, in 1878, of Landouzy, 1880, and of Martin, 1881, have recently been extended by DE CÉRENVILLE (*Revue Médicale de la Suisse Romande*, January 20, 1888), who has added to the list of cases six occurring under his personal observation. These he describes under the designation *Epilepsie Pleurétique*. The attack begins without warning, and presents the characteristics of an ordinary epileptic seizure. Its duration is extremely variable. It may last five minutes, an hour or two, or, with intermissions, several days. It may terminate in death as sudden as that of aortic disease, or in prompt recovery without repetition of convulsions. Fugacious palsies are noted; less commonly persistent monoplegias or hemiplegia. These reflexes are caused by mechanical irritation of the pleural surface, usually by injection of various fluids, exceptionally, as in a case of Leudet's, by the sound, while in one case reported by Billroth the nervous manifestations followed the insufflation of iodoform. Hemorrhage from the pleura has been coincidently noted in a large proportion of the cases, but it is clear from a study of the reports that, while more force than usual has been employed in administering the injections in a few instances, undue violence plays no necessary part in the causation of these accidents. It is a singular fact, moreover, that they occur late in the course of treatment—in thirteen cases once only within ten days, in nine instances between the twentieth and seventieth day, three times after the seventieth day, and once after the lapse of twenty months. They cannot, therefore, be ascribed to the shock of the primary operation, nor to the contact of irritating liquids with the pleural surface at the moment that it ceases to be bathed with accustomed pus. De Cérenville conjectures that the cerebral reflexes of empyema are in some unknown way causally related to new anatomical conditions developed in the process of cicatrization.

The author concludes his paper with the suggestion that injection of the pleural cavity should not be intrusted to a subordinate, who is not *un homme de l'art*, but should be practised by the physician himself, or by a capable assistant. We venture to go further, and emphasize the rule that such injections should not be practised at all, and to this rule there will be found few if any exceptions.

THE ACTION OF STROPHANTHUS.

IN late numbers of THE MEDICAL NEWS we have called attention to the action of strophanthus upon the circulation, and now take pleasure in calling attention to a valuable series of researches by FRAENKEL on the use of this drug in heart disease. Administered in a dose of five to fifteen drops three times a day Fraenkel finds (*Deutsche med. Wochen.* of February 23 and March 1, 1888) the drug quite useful in those cases of heart trouble dependent either upon valvular disease or upon inefficiency of the cardiac muscle. In excessive dilatation, or in circulatory lesions resulting from chronic contracted kidney, he believes it to be useful, but that it can in any way replace digitalis in his hands is apparently impossible. In some cases of valvular diseases he used it with negative results. In cases of arterial sclerosis of all varieties and causes Fraenkel found strophanthus of some value, although he found it necessary to give as much as fifteen drops of the tincture three times a day; a dose somewhat larger than that commonly employed in this country.

In conclusion, Fraenkel summarizes his remarks to the following effect: That strophanthus is an efficient heart tonic which can in no sense approach to digitalis, save in some individual cases, where it seems to act more favorably, owing to the presence of some peculiar condition. As a result of this he states that, sometimes when nothing but disappointment has followed the use of the older remedy, the greatest success has followed the employment of strophanthus.

The best results reached with the use of strophanthus were in functional disorders, however, such as those commonly brought about by alcohol and tobacco, and also in the removal of ascites dependent upon portal engorgement.

A SAD tragedy has recently occurred in a New England town, which will call public attention to the perils that attend the new school of quackery which pretends to heal all manner of disease by prayer alone. In this case, the lives of a young mother and her newborn infant were sacrificed to this new school of "Christian science," so-called. The responsible attendant was the dead woman's mother, who, having become a convert to the new fad, was content to experiment with it upon her own family; another "scientist" was also present. No physician was called in until after both the victims were lifeless. The woman died by hemorrhage, and for the child nothing was done. An autopsy upon both bodies was made in the presence of the medical examiner of the district, and it was conclusively shown that the mother and child were healthy before death, and that they might have been saved if they had had such attention as an ordinary nurse could have rendered. A prosecution of the two deluded women for criminal neglect will presently be begun. This is not the first time that the heresy of curing disease by prayer has been responsible for loss of life, but this is the first instance within our knowledge where there has been a double casualty. If by this sad event the eyes of the public shall be opened to the dangerous tendencies of this do-nothing treatment, the sacrifice may not have been in vain.

The rapid spread throughout the country of this heresy has been remarkable, and its success as a money-getting scheme is without parallel in the history of modern quackery. It has very little to do with the poor, but makes all its appeal to a "fine class of people," many of whom have heretofore been addicted to homœopathy. The presumption is that its career, though brilliant, will be short-lived.

THE Medical and Chirurgical Faculty of Maryland have elected the following officers for the ensuing year:

President.—John Morris, M.D.

Vice-Presidents.—J. E. Michael, M.D., Thomas B. Evans, M.D.

Recording Secretary.—G. Lane Taneyhill, M.D.

Assistant Secretary.—Robert T. Wilson, M.D.

Treasurer.—W. F. A. Kemp, M.D.

Executive Council.—I. E. Atkinson, M.D.; P. C. Williams, M.D.; S. W. Miltenberger, M.D.; George H. Rohé, M.D.; Thomas S. Lattimer, M.D.

THE Association of Medical Superintendents of American Institutions for the Insane will hold its forty-second annual session at Old Point Comfort, Va., May 15, 1888.

THE Academy of Medicine of Belgium offers, through an anonymous donor, a prize of 8000 francs ($1600) for the best essay on the Clinical History, Pathogenesis, and Therapeutics of Epilepsy; the offer closes December 31, 1888. For essays worthy of mention, from 300 to 1000 francs will be given. For the discovery of an agent which shall be of genuine value in the permanent cure of epilepsy, 25,000 francs are offered. Further information may be obtained from the secretary of the Academy.

THE fifth meeting of the Society of Italian Surgeons convened in Naples, on March 26, 1888, under the presidency of Prof. d'Antona, of Naples.

THE Marshall Hall prize, for the best original work, in English, on the physiology and pathology of the nervous system, during a period of five years, has been awarded to Dr. Gaskell, Lecturer at Cambridge.

THE death of Professor de Chaumont, Professor of Military Hygiene at Netley, is announced. In association with Professor Parkes he made valuable studies in hygiene, under the direction of the British Government.

SOCIETY PROCEEDINGS.

PHILADELPHIA ACADEMY OF SURGERY.

Stated Meeting, April 2, 1888.

THE PRESIDENT, D. HAYES AGNEW, M.D., IN THE CHAIR.

DR. W. W. KEEN reported the following

CASE OF EXTIRPATION OF ENLARGED CERVICAL GLANDS UNDER COCAINE.

Miss S., aged twenty-two years, medical student, consulted me in December, 1886, in reference to a number of enlarged glands in the neck; she was of a tubercular family, and was afflicted with a curvature of the spine. In July, 1885, Dr. Henry B. Sands, of New York, removed thirteen glands by making an incision in the left side of the neck, reaching from just below the mastoid process nearly to the clavicle. A keloid appeared in the scar

shortly after the operation, beginning at the lower end and invading the whole scar, in which the stitches then disappeared from below upward until one inch from the upper end was the only part that was normal. This keloid invasion and decline changed the scar from nearly a linear cicatrix to one about an inch wide.

November 24, 1885, Dr. Sands removed from the right axilla a number of enlarged glands, certainly a dozen.

December 22, 1886, I removed one quite large gland from above the clavicle on the left side, my incision being at the line of the old scar. I injected a four per cent. solution of cocaine under the skin, and the only pain she felt (although the tumor was deeply placed) was when I divided a small cutaneous nerve. She recovered without any trouble.

May 27, 1887, a large number of glands had rapidly increased in size. I made an incision in the line of the old scar throughout its entire length, and after dissecting through the dense cicatrized tissue and cutting the sterno-cleido-mastoid muscle entirely loose from the parts beneath, except at its two ends, I removed eighteen glands, from the size of a large pea to a good-sized hickory nut, which lay, some of them under the occiput, most of them under the sterno-cleido, and in connection with the great vessels, and three of them just above the clavicle. These last had to be reached by an incision at an angle with the first one, forming an inverted V.

Ether was given, and strict antisepsis was used, with bichloride of mercury and carbolic acid and bichloride dressings. A rubber drainage tube and a bundle of horsehairs were used for combined tubular and capillary drainage. The dressings were changed at the end of twenty-four hours, the drainage tube removed, leaving the horsehair *in situ*. On the third day, the temperature having risen to 102° F., I redressed the wound, but found everything in good condition. On the fifth day I again dressed the wound and found it entirely well. The horsehair stitches were removed.

The temperature had risen still higher, but this was explained by a severe pain in the knee which ushered in an attack of rheumatism. This proved to be a prolonged and severe attack, but she recovered from it ultimately without any heart trouble, and resumed her studies in the fall of 1887.

March 9, 1888, a number of glands had enlarged, most of them farther back in the neck, along the posterior border of the sterno-cleido-mastoid, and one as large as a filbert under the occiput. Ether caused her so much discomfort that she decided again to try the effect of cocaine. I injected fifteen minims of a four per cent. solution at the site of the suboccipital gland and thirty minims along the old scar, in which I proposed making my chief incision. I then dissected out six glands in all.

The dissection was difficult, on account of the cicatricial tissue, and occupied one hour. I poured into the wound a few drops of the solution of cocaine three times, less than two drachms being used in all, including that injected under the skin. The patient declared, both then and subsequently, that she felt no pain, and as a medical student being interested in the operation, part of the time she held a hand-glass in her hand, and watched the different steps of the operation, and made comments on them.

The wound was approximated with Chinese silk sutures (sublimated), and a sublimated dressing applied.

For the suboccipital wound horsehair alone was employed; for the larger wound, combined tubular and capillary drainage. I was particular to make my incision in the line of the old scar, as after the previous operation some moderately marked keloid changes took place in the new scar, while the incision and stitch wounds in the old scar were free from any such trouble.

The following is a record of the state of the pulse and of the temperature:

March 9, 12 M., pulse 78, temp. 99.2°. 2 to 3 P.M., operation. 4 P.M., pulse 94, temp. 102.4°. 7 P.M., pulse 86, temp. 99.3°.

10th, 7.30 A.M., pulse 86, temp. 98.4°. 5 P.M., pulse 98, temp. 98.4°.

After this date the pulse varied very little from 74, and the temperature kept at 98.4°.

I dressed the wound on the 10th and removed the rubber drainage-tube, and again on the 14th, when I removed all the horsehair and all the stitches. The wound was well, excepting the small sinus left by the horsehair, which healed quickly.

Remarks. There are four points which seem to me interesting in connection with this case. The patient has had five operations and over fifty glands removed. The glands were a great mental annoyance to her, and, as they were undergoing cheesy degeneration and would have resulted in abscesses, the operation was very satisfactory both to the patient and to myself. Whether it has saved her any further constitutional infection is open to doubt, but, at least, the operation has not done any harm in that direction; in my opinion it has done *good*. It is a very *good* illustration of the ease with which such glands may be even repeatedly operated on with speedy recovery and no ill effects. I have now repeatedly removed such enlarged scrofulous glands, and in no case have I seen occasion to regret it.

Secondly, the effect of cocaine.

The first operation which I did upon her with cocaine was very successful, and the patient's discomfort after ether was so very great that she was willing to undergo a considerable amount of pain to avoid it. The amount of cocaine used at the last operation was not large, and in its effects was a perfect success.

I think the patient was under a certain amount of mental exaltation, which was shown by a slight rise in the temperature before the operation, although in perfect health; and this may account, to some extent, for her not feeling any pain.

She has declared to me repeatedly since the operation, that in spite of the small amount used, the entire operation, which lasted one hour, was painless.

It was very curious to me to see her holding a hand-glass in her hand to watch the operation, and to hear her make comments upon it. It is a thing quite new in my personal experience during any serious operation. Her conduct in this respect seems certainly to bear out the supposition that she did not feel any pain.

Third. The rise in temperature. This was too sudden to be caused by inflammation for only one hour had elapsed since the operation, and the rise of temperature had entirely disappeared in three hours.

For this rise in temperature three possible causes may be suggested. First. Its origin might be psychical. The patient certainly was not a little excited by the operation. I myself, have never seen a rise in temperature that I

could attribute to emotion. My friend, Dr. Osler, tells me that it is not uncommon in children to see a rise of from one to two degrees caused by emotion, such as crying spells. In this case, however, the rise was three degrees.

Secondly. It is possible that it was due to the constitutional action of the cocaine. Dr. H. C. Wood informs me that this is undoubtedly a symptom of cocaine action, and that some persons are excessively susceptible to small amounts of cocaine. In this case, during the entire hour which the operation lasted, the total amount used was fifteen minims, hypodermatically, of the four per cent. solution, and about forty-five minims were poured into the wound, but most of this visibly ran off on the surface.

Dr. Wood suggests a third possibility: that cocaine may paralyze the afferent sensory nerve, and not paralyze the afferent nerves connected with the heat centres. These points I must leave to physiologists and pharmacologists.

Fourthly. The unusual course of keloid, which invaded the scar from below, travelled upward and disappeared in the same manner from below upward.

Dr. Thomas G. Morton exhibited the

SPECIMENS FROM TWO CASES OF REMOVAL OF THE APPENDIX VERMIFORMIS BY ABDOMINAL SECTION.

The speaker stated that he had already reported two cases of removal of the appendix vermiformis to the Academy. One of these cases had died and one had recovered. Of the two cases reported in the present communication, one had died and the other recovered. In the fatal cases, the result might have been different if the operation had been performed earlier.

The first case was that of a child ten years of age. When seen the patient was in a condition bordering on collapse. The appendix presented a large perforation, and three foreign bodies were found. There was inflammation of the general peritoneal cavity, and the patient died of exhaustion eight or ten hours after the operation.

The second case was that of a lady, twenty-eight years of age. Two years ago what appeared to be a simple abscess in the right iliac region was opened. She recovered and remained in good health until three weeks ago, when symptoms of rapid inflammation in the region of the appendix appeared. The abdomen was opened by a lateral incision on the third day; a large perforation in the appendix was found, but no foreign body. The appendix was removed and the abdominal cavity was washed out with hot water. Two drainage tubes were introduced—one of rubber, the other glass—and the wound was kept open to permit of the escape of probable sloughs.

Special stress was laid on the advisability in cases of extensive inflammation where sloughing of cellular tissue is likely to occur, of leaving a very free opening for the escape of the results of destructive inflammation.

Dr. J. Ewing Mears said that with reference to the incision to be employed in these cases, he thought the experience of operators has led to the conclusion that up to a certain time the lateral incision is the one to be selected. Dr. Weir fixes the time at five days. After the abscess has been evacuated, it is to be treated as any other abscess cavity. When, however, perforation of the abscess has occurred and the general peritoneal cavity is involved, median laparotomy should be chosen, and the case treated as we should treat any other case of suppurative peritonitis.

THIRD FRENCH CONGRESS OF SURGERY.

Held in Paris from March 12 to 17, 1888.

(Specially reported for The Medical News.)

(Continued from page 474.)

ON DERMOID CYSTS OF THE ANTERIOR FONTANELLE.

Dr. Lannelongue, of Paris, said that in none of the ten cases published in the past, had the diagnosis been made beforehand; it had always been done by punctures or incisions. These cysts are very rare; he had found only twelve cases, two being his own. In these two cases he established a correct diagnosis. The tumor occupies the large fontanelle in young children, and later the neighboring bony parts of the bregma. Of spherical form, widely applied to the surface of the cranium, it is very fluctuating. In three cases it was found transparent, without murmur or beating; certain tumors, however, soon after birth, have presented beating. The tumor is irreducible, and is not modified by change of position. On its surface the skin is normal and movable. Deeper it is adherent to the cranial parietes, which encircle it in a bony projection. These cysts have only been observed a few days after birth; they have been seen in old people, but their presence is recognized in the first two or three years. At first the size of a hazelnut, they may acquire the size of an egg or fist. Diagnosis is difficult, especially when the tumor is transparent. The idea of a meningocele can be disregarded, for a dermoid cyst is irreducible, and a meningocele does not exist in the region of the anterior fontanelle, outside of teratological cases. Tapping is not absolutely necessary for diagnosis; sometimes even it is of no use, the liquid might be like the cephalospinal fluid. Dissection of the tumor will present at its base the cranial wall, and the fontanelle, which is never completely obliterated. Its structure is that of a dermoid cyst; the liquid is clear, devoid of albumen, and rich in sodium chloride.

These cysts, like those of other regions, have for their origin the surrounding of an ectodermic island in the thickness of the vascular layer at the time of embryonic development. These cysts are median as regards position. There is a circumstance favorable to this surrounding of the ectoderm, in the suture of the dorsal embryonal groove, at the bottom of which develops the central nervous system.

Trying to explain why dermoid cysts of the cranium are situated more often at the lambdoid portion of the bregma than at any other point of the median line, he thought that the surrounded ectodermic islets can be displaced and pushed aside by an ossification of the cranial bones; they are in this manner pushed to the fontanelle spaces. The only treatment is the complete extirpation of the tumor; the operation, done with care, presents no danger, even for children of eight or ten months; the fontanelle is not always ossified, but this is no contraindication against intervention.

Dr. Ollier, of Lyons, had seen three cases of dermoid cysts, one of which is particularly interesting: it was a

cyst, the base of which was adherent to the cranial wall for about two to three inches. He was obliged to leave, without extirpating it, the circular bottom of the cyst, and he was surprised, some time after, to find that cure had taken place, and that the bottom of the cystic sac replaced the hairy scalp.

USEFULNESS OF LARGE INCISIONS IN THE ŒDEMAS OF MALIGNANT CARBUNCLES.

Dr. M. Pollosson, of Lyons, reported the following case: A man, aged forty-three, working in leather, was taken with a malignant pustule of the left cheek. In a few hours the œdema extended to the cheek, neck, and chest, with danger of asphyxia. He immediately extirpated the pustule with Paquelin's thermo-cautery, and made twenty-five large incisions and numerous punctures with the same instrument on the cheek, neck, and chest. The total length of incision must have been about an inch and a half; the asphyxia disappeared, the œdema subsided, and general symptoms were better. He thought these large incisions are invaluable in grave cases. They allow the running out of the serum, and permit the application of antiseptics.

RESECTION OF BONES TO REMEDY LOSS OF SUBSTANCE OF SOFT TISSUES.

Dr. E. Cirmisson, of Paris, has practised this operation twice. His first case was a woman, aged thirty-five years, epileptic, who had two severe wounds of both forearms. The result was on the left side, a flexion at right angles of the hand on the forearm, making the hand useless. In May, 1887, he excised, as completely as possible, the cicatricial tissue of the antero-inferior region of the forearm; he tried to straighten the hand, but in making this movement there remained at the antero-inferior part of the forearm a large loss of cutaneous substance, which could not have filled up without reproducing the forearm deformity. He then excised 1¼ inches of both radius and ulna, at a short distance above the carpus. The bony consolidation did not take place, and in October, 1887, he sutured the two ends of the radius; cure took place by first intention, and toward the end of December consolidation was complete. The silver suture remains encysted in the tissues.

His second case was a man, forty years of age, in whom a severe burn of the right leg had determined an equino-varus club-foot, and a permanent ulceration in front of the external malleolus. On the 5th of September, 1887, he practised the tibio-tarsal excision, preserving the external malleolus. Cure took place after slight suppuration. Now the patient is beginning to walk on his leg, the ulcer is cicatrized, the shortening measures 1½ inches.

ON THE SURGICAL TREATMENT OF TUBERCULOSIS OF THE BLADDER.

Dr. Guyon, of Paris, had tried the radical cure of vesical tuberculosis on the same ground that external local tuberculosis is treated. In two cases he has found the tubercle well situated for interference.

The first case was a man, aged twenty years, no gonorrhœa, who presented a very painful tuberculous cystitis; the urine contained a great many bacilli. He opened the bladder by abdominal section, then dilated the neck, and painted the parts with iodoformed oil. After seventeen days drainage, the patient was completely cured.

His second patient, a man aged forty years, who had never had gonorrhœa, presented a tuberculosis limited to the bladder; the urine contained tubercle bacilli. The bladder was opened, the diseased parts curetted and cauterized with the hot iron. The patient was cured of his local tuberculosis, for no more bacilli appeared in his urine; a certain amount of cystitis remained, however. He preferred in these interventions the hypogastric method.

THE USE OF FORCEPS IN VAGINAL HYSTERECTOMY.

Dr. Demons, of Bordeaux, thought that in post-operative hemorrhage the use of pressure forceps to stop the bleeding an excellent method, when the uterus cannot be drawn down; but when this organ can be pulled down, he preferred ligature. The danger of forceps lies in the fact that we may seize the ureter, which fact has happened on several occasions; even the anterior wall of the rectum may be caught. Moreover, the formation of a slough, the result of the use of these forceps, will postpone healing, whilst the ligature has not these objections.

As to the excision of the vagina, which is recommended by M. Richelot, it is a good precaution, but we must not make it too extensive, or we may wound the ureters; recurrence, of course, takes place more often in the broad ligaments.

Dr. Péan, of Paris, drew attention to the fact that he had been the first to use pressure forceps in vaginal hysterectomies, having presented, in 1882, his observations before the Academy of Medicine. He said that no reference had been made to the important service rendered by temporary pressure; which, with two or more long forceps, straight and curved, permits the rapid detachment of the uterus without loss of blood. This allows us also, when the organ has been extracted, to pull down the broad ligaments, and when it is thought necessary to ligate them in halves, without difficulty or fear of hemorrhage. It will also permit us to omit the ligature, when we leave these forceps in place. Contrary to M. Demons, he thought that the forceps ought to be used especially in cases where the uterus can be easily drawn down.

Dr. Terrier, of Paris, had thought vaginal hysterectomy very difficult when he used ligatures, and now finds it very easy since the forceps have been used. He has made this operation 19 times, with 15 good results and 4 deaths, 1 being from hemorrhage in a case treated with ligatures. It gives, then, a mortality of 22 per cent. To appreciate the further results, we must not only separate the 4 cases of deaths, but also 4 cases in which the intervention was to have been temporary and palliative, but in which hysterectomy became necessary on account of opening the peritoneum; out of these incomplete cases, he had only 1 death; out of the other 11 cases, he had in 7 rapid return of the trouble; 3 other patients where tumors had been recognized microscopically as cancers, have remained cured for two years and nine months, one year and nine months, and one year; finally, in 1 case, he had to deal with an intra-cervical œdema, which did not return. These results represent 70 per cent. of rapid relapse, and 30 per cent. of cures which appear permanent. He concludes:

1st. That vaginal hysterectomy for cancer is a very serious operation, as it gives 22 per cent. of operative deaths.

2d. The operation appears more rational than partial amputations, although those are more easy and less dangerous primitively.

3d. Incomplete hysterectomy is not more grave, but is insufficient in all incomplete operations.

4th. Relapse occurs in 70 per cent. of cases; it is usually rapid.

5th. Cure is possible. He had found it in 30 per cent. of his observations where the diagnosis had been histologically verified.

DR. RICHELOT, of Paris, said that when the uterus can be drawn down, the only way to prevent hemorrhage is to use the forceps; moreover, cure is not retarded by the use of these forceps; for having made an autopsy three days after an operation, he found a well-advanced cicatrization. As regards the ureter, the accident of seizing these canals has occurred with ligatures.

As to the supra-vaginal irregular amputation, he considers it as a very successful operation, as much so as curetting. As to the use of the pressure forceps, he thinks that it is to their use that we owe the increase in the number of vaginal hysterectomies.

INDICATIONS AND TECHNIQUE OF VAGINAL HYSTERECTOMIES FOR CANCER.

DR. POZZI, of Paris, said that vaginal hysterectomy can be applied to all cases in which supra- and infra-vaginal amputations of the neck of the uterus were performed. This operation is contraindicated in the following conditions:

1. Extension of the disease to the broad ligaments, shown by immobility of the organ and difficulty in lowering it after anæsthesia.

2. Primary and secondary extension to the vagina even when very limited.

3. Considerable volume of the cancerous uterus, rendering impossible or difficult its extirpation without tearing.

Palliative hysterectomy with or without excision of the vaginal cul-de-sac in all cases of this kind, must be disregarded. The dangers are out of proportion to the advantages it will procure. In all cases where a radical cure must not be attempted the palliative surgical treatment is of great service against hemorrhage, ichorous oozing, and pain. The operation consists in the methodical curetting of the diseased tissues followed by cauterizing with the red-hot iron.

The cutting curette is to be preferred, when well handled, to the knife. The red-hot iron will effectually complete the action of the curette. It can be carried without danger to the bottom of the uterus.

In cases of cancer of the neck and body, without extension, but too voluminous to be extracted per vaginam, the precedent palliative treatment (curetting with cauterization) should be preferred to total extirpation by abdominal section (Freund's operation).

4. The use of pressure forceps permanently does not give sufficient security against hemorrhage, especially primary. It exposes one to the compression and wounding of the neighboring organs and renders antiseptic precautions more difficult and the dressing more painful.

Pressure forceps are only to be used as a necessity and not as a method of choice, which is to be reserved for the ligature. These must be applied successively to the divided vaginal walls and on the broad ligaments, after inversion of the uterus. In cases where the uterus alone is taken, and the organ is movable and easily depressed, ligatures offer no real difficulties. One could say that pressure forceps permanently applied are only necessary in a hysterectomy which ought not to have been undertaken.

ABDOMINAL HYSTERECTOMY FOR VOLUMINOUS FIBROMAS.

DR. TERRILLON, of Paris, said that during five years he had treated 76 women suffering from voluminous fibromata which could not be extirpated per vaginam; 16 have been operated on by abdominal hysterectomy, the section was made above the vagina. 6 were treated by Battey's operation for grave hemorrhages due to the presence of fibromas of a medium size. 6 died on account of the presence of a fibroid body in the uterus which gave rise to variable accidents. Finally, 48 have been treated by medical methods. Abdominal hysterectomies have been nearly all treated by a method which consists in fixing the pedicle outside. Two only have been treated by returning the pedicle in the abdomen. Out of the 14 cases treated by the external method, 6 pedicles were ligatured with iron wire, with a rubber tube. This last method cuts the pedicle more easily. These 16 hysterectomies gave him 5 deaths and 11 successes. Death was produced in 2 cases by shock, no traces of peritonitis or septicæmia; 1 peritonitis, 1 from grave hemorrhage during the operation, 1 from pyæmia on the seventeenth day. Out of the 6 cases of extirpation of the ovaries and Fallopian tubes 5 were absolutely cured, the hemorrhages having stopped; 1 died sixty days after the operation from intestinal obstruction, the hemorrhages had ceased. The 6 deaths due to the fibrous body are: 2 by hemorrhage, 2 by phlebitis, 2 by septicæmia. In the other 48 cases he has used ergotin, which gave good results in hemorrhages, but often failed, even increased hemorrhages when the uterine cavity was enlarged. Cannabis Indica stopped the pains and hemorrhages. Finally, salt baths have been useful in anæmia due to repeated hemorrhages.

CAVERNOUS LYMPHANGIOMA.

DR. CH. MONOD, of Paris, saw a girl, eight months old, who presented on one shoulder a tumor the size of a hen's egg, the clinical characters being those of a cyst with thickened walls. On extirpation it was found to be a circumscribed cavernous lymphangioma, that is, a tumor with multiple divisions lined by an endothelium similar to those lining lymphatic vessels and filled with a serous liquid. This example led him to think that we have probably often confused *lymphangiectomies* with *lymphangiomas*.

The usually accepted definition for sanguine angioma is that it is a tumor constituted in great part by vessels of new formation (Cornil and Ranvier). Applying this definition to lymphangioma, he thinks we ought to reserve this last designation for tumors of lymphatic origin, in which one can admit and demonstrate the new formation of vessels and lymphatic laminæ.

To apply the name of lymphangioma to simple lymphatic dilatation would be exactly similar to giving the name of angioma to dilatations of the veins (varicose veins) or arteries (aneurism), which no one would accept. The lymphangioma, so accepted, is a very rare

tumor, he had only found two cases in medical literature which are like his, one by Reichel and the other by Middeldorpf. The only treatment for these tumors is extirpation and it is without danger.

URETHRECTOMY IN CERTAIN STRICTURES.

Dr. Poncet, of Lyons, said that the excision of a portion of the urethra, followed by the union of the two divided ends, is a good operation which finds its indication in peri-urethral fibrous induration encircling the urethra with an indurated perineal mass. Out of nine patients on whom he operated he had no death nor grave accidents; in three cases he obtained union by first intention.

After several months the result was perfect; a No. 20 bougie could be easily passed. In the six remaining cases the union took place more slowly, and the patients remained a few weeks in the hospital. The final result of this operation is superior to that of external urethrotomy, especially when union takes place by first intention. The calibre of the canal remains normal, and a few months after the operation it is difficult to find the former seat of the stricture. If union by first intention does not take place on account of the extent of the stricture, or for any other cause, a new canal will be formed by granulation. The cure, however, will necessitate several weeks, and if one wants to maintain a sufficient calibre to the urethral portion of new formation, daily catheterization must be practised, which the patient must do himself.

Micturition and coitus take place without interference; such has been the case in five of his patients whom he had seen several months after the operation.

SURGICAL TREATMENT OF HEPATIC CYSTS.

Dr. Segond, of Paris, said that there are two ways to reach infra-diaphragmatic hepatic cysts: the abdominal method; the pleural one. The abdominal method necessitates a tilting forward of the entire liver, and fixing it by approximate sutures in this new position. The pleural method, more direct, necessitates the successive incision of the thoracic wall, the pleural cul-de-sac, and finally the diaphragm. He has had satisfactory results in two cases on which he operated by the pleural method, incision of the thoracic wall, with or without costal excision. The first one was complicated by vomica and pulmonary suppuration, the other, more simple, and without connection with the lung. He concludes that transpleural incision, with costal excision, is the method of choice for posterior infra-diaphragmatic cysts. The dangers are less, he thinks, than when the anterior incision is performed and traction on the liver is made.

OPENING HYDATID CYSTS OF THE LIVER BY THE PLEURAL METHOD.

Dr. Maunoury, of Chartres, reported the case of a man of twenty-nine, who had an hydatid suppurating cyst of the upper surface of the liver, giving rise to very severe symptoms; being unable to reach this part by the anterior abdominal section, he opened it at the eighth intercostal space, which was the most projecting; on this level there existed, in the pleura and peritoneum, adhesions which appeared very solid. Two days later the pleural adhesions were destroyed, the contents of the cyst entered the pleura, and the patient died.

A few months ago, having to treat a woman, aged thirty-four years, presenting a similar cyst, he operated differently. He opened, at the most projecting point, the tenth intercostal space, and incised the parietal pleura through the diaphragmatic pleura. He sutured them together, so as to produce a complete canal through the serous membrane, then finished by incising the diaphragm, exposed the cyst, punctured it, and finally brought it to the exterior, fixing it on each side to the skin. No accidents occurred, and the patient is now perfectly well.

SUTURE OF THE INTESTINE FOR A CÆCAL FISTULA.

Dr. Horteloup, of Paris, reported the case of a woman who had had a perityphlitis; an abscess followed, which terminated in the formation of a large cæcal fistula, being four inches long and two broad. He tried on two occasions to remedy the trouble by sutures, but failed; he then resorted to the following operation: he made a circular incision between the mucous membrane and the cicatricial tissue; detached completely the intestine from the abdominal walls, and applied nine isolated sutures of carbolized silk, to close the abnormal opening; then, before uniting the abdominal wound, he washed the intestinal wound and the peritoneal cavity with boiled water, then finally applied isolated sutures to the abdominal parietes. The *next* day he gave his patient a purgative enema and the patient had regular evacuations, the sutures held firmly. Thirty-six hours later he gave him castor oil. He insists on two points of this operation:

1. The sutures he employed he prefers to Lembert's suture, as they require much less tissue than the latter.

2. The early administration of laxatives.

This last fact is contrary to accepted rules, but he claims that by keeping the intestines quiet with opium, the formation of gases is favored, which often brings on a condition of meteorism which tears the sutures and gives bad results; while laxatives prevent intestinal inertia which is due to a reflex state, and the intestine is much more easily restored to a normal and physiological condition.

NEWS ITEMS.

Mortality among Physicians.—The Illinois State Board of Health, in its *Report* of April 20, 1888, publishes the following conclusions from tabulated reports of death and disease among physicians:

The obvious inference is that physicians on entering practice form a class of selected lives, since they have an advantage of nearly 3 per cent. as compared with all males at the same ages—that is from twenty-four to forty; and of over 50 per cent. as compared with the total population, both sexes, at the same ages, this latter great disparity being no doubt largely due to the casualties among women during the childbearing period.

As the wear and tear of practice begins to tell, this advantage is soon lost, so that during the period from thirty to seventy the death-rate of physicians is 8 per cent. greater than that of all males, and during the period from forty to seventy it is more than 11 per cent. greater than that of both sexes.

The Pollution of Ice.—The Massachusetts State Board of Health has been investigating the purity of the ice supply of Boston and vicinity. A recent number of the *Boston Herald*, in publishing a report of the work done

by the Board, describes the following example of the dangers of impure ice, occurring at a hotel at Rye Beach:

The Rye Beach trouble was ably reported upon by Dr. A. H. Nichols. He was engaged by the proprietors of the hotel, who were, of course, suffering pecuniarily from the trouble, to investigate it thoroughly. The disorder in question may be comprehended under the general term disturbance of the digestive system, characterized by a sensation of giddiness and nausea, vomiting, diarrhœa, severe abdominal pains, all of which was accompanied by fever, loss of appetite, continued indigestion, and mental depression. The epidemic, though confined to so limited boundaries, baffled for a considerable time all efforts to trace the trouble to any specific cause. At first the drinking water was suspected, but that was drawn from wells at a safe distance from all drains and contaminations. It was also ascertained that some of the persons affected, having apprehended trouble from some such source, had used some other beverage. They had not hesitated, however, to use ice, either melted or otherwise. Suspicion at length rested upon the supply of ice furnished the house. A large portion of the ice furnished the town was found to be gathered from shallow ponds, formed during the winter by the flooding of meadows, and it, therefore, contained, as a rule, more or less grass and old vegetable matter, being, consequently, far less transparent than the ice supplied in Boston.

The ice in this case was found to contain numerous foreign substances, varying in size, and apparently of vegetable origin, and the blocks were opaque. By questioning residents of the place, it was found that, during the winter, one had taken home some of the ice for the purpose of testing it, to find out whether it was fit to use, and, having eaten some of it, was made violently ill. Others had noticed a disagreeable odor arising from it. Two gentlemen who had taken some of it on a fishing excursion were made ill by using it, and in the room in which the ice was stored for the hotel there was a very bad smell. When the water from the melted ice was poured into a glass in the sunlight there was seen to be a discoloration, and it was charged with suspended matter. The pond itself was then examined, and was found to be stagnant, while down at one end of it there was a homogeneous mass of putrescent matter, composed of marsh mud and decomposing sawdust. When stirred the water near this place emitted an intolerably offensive odor. At houses near by it was found that in the summer time the windows had to be closed when the water was in any way disturbed, on account of the smell it gave off. Prof. W. R. Nichols was asked to examine samples of the water, and reported that it contained in suspension a considerable quantity of vegetable matter more or less decayed, and possessed a slightly disagreeable odor which became more noticeable as the water was warmed. Of the organic matter, some was so heavy as to settle down at once into the bottom of the vessel into which it was poured, but the lighter material remained for an indefinite time diffused through the water and would be drunk by anyone using the ice in the ordinary way. Prof. Nichols thought that it was quite reasonable to suppose that the ice had been the cause of the sickness.

Coincident with the disuse of ice at the hotel the guests began to get well, and there was no further sickness.

Ice taken from a cart of the Boston Ice Company was analyzed beside that taken from Rye Beach, and the result showed that, while the organic and volatile matter was 0.31 in the Boston ice, it was 5.72 in the Rye Beach ice; and, while the chlorine was 0.02 in the Boston ice, it was 3 23 in that from Rye Beach. Dr. Nichols is constrained to say that great responsibility devolves upon those who undertake to provide food and drink for large numbers of individuals, and to such this experience inculcates the importance of giving special attention to the purity of drinking water, and guarding against every possible source of contamination. The notion that ice purifies itself by the process of freezing is not based upon trustworthy scientific observation. On the contrary, it is utterly wrong in principle to take ice for consumption from any pond, the water of which is so fouled that it is unfit for drinking purposes.

The Dangers of Carpet Beating.—The Paris correspondent of the *Popular Science News* writes that the Conseil de Salubrité of Paris has recently discovered the inconvenience of allowing carpets to be brushed and beaten in the open air in the vicinity of inhabited houses, on account of the dust which is so raised, and especially on account of the bacteria which may be set free when the carpets come from houses where zymotic diseases have existed. The Conseil de Salubrité has decided that this operation will be allowed only under the following conditions: The carpets must be brushed and beaten in entirely shut-up rooms, and the dust deposited on the floor will be washed with water containing some disinfectant of potent action; strips of wool, etc., will be burnt immediately. This measure is a good one, and will certainly prove useful. Sources of contamination are much too numerous to be allowed to remain, when we possess means of destroying them.

Typhoid Contagion by Clothing.—The Berlin correspondent of the *Medical Press* of March 28, 1888, writes that many striking illustrations of the origin and spread of typhoid fever epidemics are on record, but not many are more instructive than the history of a persistent epidemic that played havoc in a German artillery barracks during more than a decennium, from 1873 to 1885. Two neighboring barracks were occupied by the 1st Division of the 2d Hanoverian Field Artillery Regiment, No. 26, and in the year 1873 a case of typhoid was imported, probably, as is supposed, on the return from France of the army of occupation, and from that date to the close of the epidemic 146 cases of fever occurred. Almost the whole of the cases occurred in one of the barracks, in which 238 men found accommodation, although the drinking water of both was from a common source. Every attention was paid, every inquiry was made into possible sources of disease, the latrines, water, buildings, everything was put and kept in the best possible condition, but the disease still baffled all inquiry. At last, the question of the propriety of closing the barracks came up for consideration, when, in 1883, the observation was made that about one-half of the cases were furnished by the men of one battery alone, and suspicion fell upon the bed linen and clothing. It was then ascertained that three of the recent cases had used the clothing and bedding of men that had been attacked. This led to closer examination of the clothing, and it was then discovered that the linings of the trousers were almost, without exception, soiled by

dried fecal matter, of which a part probably had its origin in typhoid patients. The clothing had previously gone through a routine of disinfection by sulphur vapor, but as the result showed the disinfection had been nil. It was now submitted to more careful treatment and thorough cleansing, twelve hours saturation with chlorine gas, and lastly, dry heat for several hours more. From this time, November 18, 1885, no more cases of disease occurred.

Benzine an Adulteration of Antipyrin.—Dujardin-Beaumetz calls attention to recent analyses of antipyrin as commonly sold, which showed benzine to be present not rarely as an adulteration. Some of the ill effects reported may be thus accounted for.

Lipanine, a Substitute for Cod-liver Oil.—The *Revue Scientifique* writes that cod-liver oil is in certain cases so wonderful a medicine, that we must regret that we do not know its active constituents with exactness, so as to be able to administer them in a form less repugnant than that of the oil itself. M. Mering has performed an experiment in this line that should be noted.

Starting from the theory, adopted by most doctors and pharmacologists, that cod-liver oil owes its superiority over other fatty oils to its richness in oleic acid—white oil contains from 0.18 per cent. to 0.71 per cent., and brown oil 2.54 per cent. to 5.07 per cent.—the author has tried experiments with a mixture of olive oil (100 parts) and oleic acid (6 parts), to which he has given the name of lipanine, and to which he attributes the following advantages:

Lipanine would have no disagreeable taste and would be perfectly digestible, because of its high emulsive power, oleic acid saponifying with the alkalies of the bile and pancreatic juice. For this reason it could be administered for long periods in large doses without injury to the digestive faculties. In fact, M. Mering reports that for a period of six months he administered this remedy to forty patients, of whom thirty were children, and that all took it without repugnance and without subsequent ill effects. The dose varied from one to four teaspoonfuls, according to the patient's age, and this was continued from six weeks to three months. Most of the patients were scrofulous or rickety, some consumptives or diabetics. All of them under this treatment increased in weight, their general condition improved, their strength returned, and these good results were obtained also among a great number of children in charge of Professor Kohts. In a word, these effects would appear absolutely comparable with those obtained with cod-liver oil, but the advantages of lipanine in its freedom from taste, easy toleration by the stomach, and capability of administration in the hottest summer weather are equally obvious.

A Tribute to the Late Dr. Cornelius R. Agnew.—The following communication to the *New York Evening Post* of recent date evidences his work among the soldiers during the War of the Rebellion:

To the Editor of the Evening Post,

SIR: Permit me to place one flower on the grave of Dr. C. R. Agnew, in grateful remembrance of his kindness to soldiers during the late war.

I was severely injured in the eye while fencing with a brother officer at the headquarters of the Army of the Potomac. Gen. Meade's Surgeon-General advised that I should at once be sent to Dr. Agnew in New York, and this was done. For thirty days Dr. Agnew's care was bestowed upon me with marvellous skill and the tenderness of a loving parent. At the end of that time I was able to return to duty, when, upon asking the doctor for his bill, he laid his hand on my shoulder and looked into my eyes and said: "Captain, what I have done for you is only an expression of what I feel is due to every man who wears your uniform. You do not owe me anything."

On my way back to the army I met a captain of artillery whose hearing had been injured by the bursting of a shell near his head. We had met often at Dr. Agnew's office, and, on comparing notes, each learned of the doctor's generous kindness to the other.

Only a few people *know* of Dr. Agnew's devotion to the men of the army. To me, "The world seems lonely without him." Respectfully yours,

AN EX-OFFICER OF THE U. S. ARMY.

CORRIGENDUM.

THE interesting article entitled, "A Case of Symmetrical Gangrene," which appeared in our issue of last week, page 461, should have been credited to Dr. M. A. Veeder, *not* "Beader" as printed.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING APRIL 28, 1888.

RHOADES, A. C., *Medical Inspector.*—Detached from special duty, New York, and waiting orders.

HENNEBERGER, L. G., *Passed Assistant Surgeon.*—Detached from Naval Hospital, New York, and to special duty attending officers and families New York.

OBERLY, A. S., *Medical Inspector.*—Granted six months leave with permission to visit Europe.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM APRIL 24 TO APRIL 30, 1888.

BAILY, JOSEPH C., *Lieutenant-Colonel and Assistant Medical Purveyor.*—Granted leave of absence for twenty days on surgeon's certificate of disability, with permission to apply for an extension.—*S. O. 92, A. G. O.*, April 21, 1888.

BAILY, JOSEPH C., *Lieutenant-Colonel and Assistant Medical Purveyor.*—Will transfer the public funds, for which he is responsible, and the charge of the Medical Purveying Depot in New York City, temporarily, to Captain Henry Johnson, Medical Storekeeper.—*S. O. 92, A. G. O.*, April 21, 1888.

Par. 13, S. O. 89, A. G. O., April 18, is revoked by par. 1, S. O. 93, A. G. O., April 23, and STERNBERG, GEORGE M., *Major and Surgeon, U. S. Army*, is directed to proceed to the Island of Cuba for the purpose named in the letter of the President addressed to the Secretary of War on the 17th inst. Upon the completion of this duty will return to his proper station, and submit his report to the President on or before June 25, 1888.

VICKERY, R. S., *Major and Surgeon.*—Granted leave of absence for four months, with permission to apply for an extension of two months and to go beyond sea.—*S. O 95, A. G. O.*, April 25, 1888.

By direction of the President, PERSONS, REMUS C., *Surgeon*, U. S. Army, is assigned, temporarily, to the charge of the Army and Navy General Hospital, Hot Springs, Arkansas, during the absence, on leave, of Major Richard S. Vickery, Surgeon, U. S. Army, Surgeon in charge.—*S. O. 96, A. G. O.*, April 26, 1888.

WOOD, LEONARD, *First Lieutenant and Assistant Surgeon.*—Granted one month's leave of absence, with permission for an extension of two months.—*S. O. 41, Department of Arizona*, April 18, 1888.

ANDERSON, CHARLES L. G., *First Lieutenant and Assistant Surgeon.*—Granted one month's leave of absence, from June 1, 1888. Resignation accepted by the President, to take effect July 1, 1888.—*S. O. 92, A. G. O.*, April 21, 1888.

THE MEDICAL NEWS.

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AMERICAN MEDICAL ASSOCIATION.

THIRTY-NINTH ANNUAL MEETING, CINCINNATI, 1888.

THE ADDRESS IN SURGERY.

Delivered May 10th.

BY E. M. MOORE, M.D.,

OF ROCHESTER, NEW YORK.

A SKETCH OF THE PROGRESS OF SURGERY.

FROM the broad field of surgery there are many lines of inquiry which might interest its devotees if properly followed. But to treat of any one of them implies special study of the new developments that now abound in the great advances in the arts and the sciences whose discoveries it employs. On a former occasion your reader occupied the same relation to you that he does at this moment. He then prepared himself for the occasion by a series of experiments *in corpore vile*, to illustrate the subject of blood infusion. He believes he had the good fortune to add a thought to knowledge on this topic. It seemed to him that a general view of the relation of surgery, and the surgeon, to the community in which he lives and has lived might be of sufficient interest to justify the spending an hour in its review. This must revive well-known stories, and allude to present movements familiar to all; but they contain triumphs which always stir the heart of the true surgeon. Pope in his mellifluous couplet, which has pleasantly rung in the ears of every physician from his youth up, has interpreted the views of Homer of three thousand years ago, when he sang that,

> "A wise physician, skilled our wounds to heal,
> Is more than armies to the public weal."

Then, as now, the surgeon was most prominently connected in the public mind with the treatment of wounds of accidents, or those of his own making.

Recurring to the subject of wounds, we can, perhaps, at no one point get a better illustration of the movement of discovery than in the changes with reference to their management, and especially of those that the surgeon inflicts in performing the amputation of a limb. It would be idle, in the few minutes at my disposal, to follow accurately even this one line. The attempts at primary union have seldom been other than partial, until the advent of the modern antiseptic methods. In the early part of this century, experiments upon the encysting of ligatures for closing the arteries were tried and abandoned. The movement from the open wound, of necessity, to the closed one antiseptically treated with soluble ligatures and sutures has been long and slow. We had almost come to the definite conclusion to make the open wound as the final judgment of the profession. Hippocrates avoided amputation except in cases of gangrene. In his day it was full of terror. Indeed, there could not be said to be any amputation as we understand the process. Limbs that were crushed or injured by compound fracture were allowed to get well or to mortify. When gangrenous, after the red line was formed, it was made at the border that Nature had decided on as the place of separation between the dead and the living. Such delays in the treatment of severe injuries, with our knowledge, would be simply criminal. But when gangrene has occurred and we wait as we must, except in certain rare conditions generally understood, I am in accord with the custom of Hippocrates. This places me in contrast with a practice almost universal. But, singular as it may seem, an antiseptic dressing will complete the measure of safety incident to the amputation through the dead part.

Reasons for this belief are easily stated, and, of course, are not those founded on the fear of amputation through the living parts as a general measure. But when the red line has formed, Nature has already made the amputation. Following an irregular line, which is lowest down in the integuments and bone, the separation has been made between the dead and the living tissue. The danger arises from the retention of poisonous fluids in contact with tissues now full of vitality. An operation of necessity can be made, closely following the line of demarcation, and it will be found that the endosteum retains its vascularity nearly, if not quite, as far down as the integument does. These are the two factors of an amputation indispensable to its success. The muscles, and especially the fascia and aponeuroses, as well as the periosteum, are apt to die. Deep recesses following the connective tissue will be filled with pus and septic fluids. The amputation may be made as described, with far better hope of success, than higher up through the living tissues. The special dangers of amputation through them are avoided. There are no vessels to tie, there is no fresh absorbing surface to be poisoned by its own secretion, there is no danger from hemorrhage, and more than all, in the enfeebled condition of the patient, there is no shock. The deep recesses are now exposed and can be cleansed. Absorbent cotton, moistened with a solution of mercuric chloride pushed into the open spaces, at once attracts, by capillary attraction, all the fluids. When the succeeding dressing is undertaken, it will be found that every part has the appearance, and, indeed, the reality of having been washed clean. The irregular surface is, however, a granulating one, and for this reason alone has become one that is essentially protected from the dangers of sepsis as soon as a free escape of the fluids can be effected. The periosteum, if destroyed, may result in necrosis of the outer shell of the bone. But the endosteum will maintain it in its integrity sufficient for the length of the stump. The wound being necessarily an open one, closes slowly.

It will be seen that the observation which I urge upon your attention is a return to the ancient method, with two thoughts added to it, which, in my judgment, should change our practice in these cases. They are, as every

surgeon knows, fraught with great danger when the amputation is made above, in the living tissue, for the shock of amputation in the enfeebled state is frequently fatal. The custom of the ancients was to pick away the dead part, and divide the bone high up. They were anxious to disarticulate, if the line of separation had gone to a joint. One stands aghast at the shapes their stumps must have assumed. In recommending the open wound, in these cases, I only do so at points where a proper stump can be made. Take, as an illustration, gangrene commencing in the foot, and stopping on the leg four or five inches below the knee. According to our custom, the amputation must be made through the thigh. But the danger of such an amputation is vastly more than by the Hippocratic method, at the red line, and the lower stump is far better. The choice, in my opinion, should be made at the red line, if possible.

The advent of the gunshot wound occurred at a time when the practice of surgery was at a low point; and the effect of the "villanous gunpowder" was regarded with just grounds of terror. The terrible results were ascribed to poison. Both the lead and the gunpowder were poison. How could such fatality occur unless from poison? Poison wounds should be treated with the hot cauterizing iron, or boiling oil, to destroy the infected surface. The bullet must be extracted, if it be possible; its poisonous character could scarcely be borne by the constitution. The surgeon with such views would be apt to complete the work of the soldier. But time reforms medical as well as other opinions. If easily extracted, all foreign bodies should be removed, even with the present views of the innocuous character of the bullet. This has always been accepted, and expectation has been the practice for a long time. But now we have antisepsis of the track and careful covering of the wound to guard against microbal invasion. How far this may be carried is yet unknown, but great advance has already been gained. It is, however, of recent date that the greatest steps have been taken in the management of this special form of wound. Among the most notable are those announced from this platform. The facts are all known to you. The great cavities of the body have, heretofore, been deemed unapproachable. It was believed that the surgeon, if he undertook their exploration, would render certain what was almost sure to happen. In gunshot wounds of the abdomen there might, perhaps, be one life saved, while ten were lost. Why should this meagre hope be denied?

But all this is changed. I do not report, but only allude to the marvels that are detailed by Drs. Parkes and Senn, marvels that we could only know by the use of vivisection, which, fortunately, has not yet been submerged under a sea of maudlin sentimentality. Here, again, we have the triumph of cleanliness. A gunshot wound of the intestine will inevitably result in the expulsion of some of the contents of the bowels, the vermicular motions of the intestines will surely secure this result, even if, after a while, these motions are arrested, in obedience to the law of inflammation. The cases of recovery were, probably, those where a fortunate apposition of the wound near the abdominal walls circumscribed the area of pollution and nature's active efforts at repair completed the line of circumvallation. The case of the insane woman in Utica Asylum, who punctured the abdomen and drew out a piece of the small intestine, fourteen inches long, and cutting it off with a pair of scissors, threw it on the floor, is widely known. The physician in attendance knew of nothing but expectation in such an emergency. He drew the edges of the abdominal wound together, and waited the event. No remarkable symptoms supervened. The recovery was complete. Many years after, an autopsy revealed the fact that the edges of the intestinal wound had been fastened to the abdominal wall. But such results are too rare to be guides of conduct. The new methods are already accredited with improvement, and as the courage and better diagnosis of the surgeon improve, we shall inevitably place the treatment of these wounds by laparotomy upon a sure foundation.

Every surgeon has seen cases of strangulated hernia where gangrene has supervened, and will bear testimony to the fatal character of the injury. Now, for the relief of this condition enterorrhaphy comes in to take its place as a recognized operation, with large increase in the saving of life. Again, cleanliness is the pivot upon which the whole movement turns. It seems incredible that the peculiar kind of filth that invades the peritoneum in gunshot wounds of the intestine, can be removed sufficiently to secure even such results as have been obtained. Antiseptics of proper strength over this immense surface are dangerous expedients. Are we to see a stream of distilled water, rendered properly saline, carried into and out of the peritoneal cavity long enough to insure cleanliness? Are we to irrigate the surface after inflammatory exudates have actually appeared? The possibilities seem large. That these exudates, when extensive, may accompany a fatal inflammation without the formation of the dangerous ptomaines of microbal creation, it seems to me to be manifest. In the experiments by Dr. Parkes on dogs, one fact is to be especially noted; the frequency of the existence of entozoa and their migration through the wound. It has been my fortune to witness two deaths from rupture of the intestine by external force, without a wound of the abdominal wall, not even a break in the parietal peritoneum. One was in a child of six years of age; the other in a man of forty. The child died in twenty-three hours, and the man in twenty-six. Autopsy revealed a fact exactly the same in each case. The fibrinous exudate of a character sufficiently firm to be lifted upon the handle of the scalpel had extended over the whole surface of the peritoneum, even to its remotest corner. It is a little odd also, that a single lumbricoid worm had crawled through the opening in both cases. The fibrinous material had probably acquired its firmness many hours before death. It is hardly credible that much pathological change could have occurred during the latter hours of life.

Just fifty-one years ago, during my student days, I had the pleasure of an invitation from Prof. Mütter to witness the first operation on the tendo Achillis in Philadelphia, and, as I believe, on this continent. It was his second operation. The antecedent one was upon the hamstrings. Still a young surgeon, he was especially patronized by Dr. John Rhea Barton, who, upon the then recent death of Dr. Physick, was by common consent recognized as the surgical chief of Philadelphia. Dr. Barton protested vehemently against the operation and refused to witness it, being unwilling to give his countenance to anything that was so dangerous. It would certainly blight Mütter's prospects in life. Moreover, the

interests of the patient should stand first and he could not be a party to anything so contrary to good surgery. The great fact of the immunity from suppuration when subcutaneous incision is made, had not yet impressed itself upon the surgical mind. The vast value of direct repair had acquired its recognition under the guidance of John Hunter, but the value of the subcutaneous cut was not appreciated. This marks one of the most magnificent of all surgical movements. The rationale was to be explained to-day. Antisepsis is the legitimate descendant of the subcutaneous cut. The tenotome would almost surely be cleansed as it passed through the skin, and the minute wound would be washed by the few drops of extruded blood. This was clearly our antisepsis. Was not Dr. Barton justified by his experience? With our knowledge his conclusions reached the depth of absurdity. But had he not seen tendons sloughing when exposed to the air? Had not cases enough of accidental incision of the tendo Achillis been reported to prove that if the life, always in danger, was preserved, the limb was likely to be useless from the loss of its great tendon? The surgical world woke to a great fact, and strabismus, torticollis, and all contracted tendons came under the surgeon's knife, until it became almost a craze, when Guerin, for the relief of lateral curvature of the spine, cut every spinal muscle and tendon that he could define, until the chain of bones could be moved like a serpent's back.

At the meeting of the New York State Medical Association last September I led the discussion upon the proper method of treating compound dislocation of the ankle-joint. I found the opinions of surgeons on this point very indefinite, with a strong, even an uncompromising judgment in favor of amputation; notably by Prof. Gross, who would make rare exceptions to this plan. Others advised reduction and a few relied on resection, some of the tibia and fibula with removal of the ends of both bones with their malleoli, while others removed the surface of the astragalus also. Even the most modern writers left the whole subject in a vague way to the judgment of the practitioner. These authors were quoted to show their various opinions, but it would be out of place in this paper. For a long time I had been convinced of the great wrong inflicted by these teachings, which were founded on the statistics of hospitals in large cities before the day of antiseptic surgery. Such advice was even then not applicable to the condition of life in the country and smaller towns, where purer air and better constitutions existed together. I had used resection with good results in three cases, and had seen two cases, in consultation, which had been simply reduced by the surgeon in attendance. The latter made good recovery after a considerable constitutional disturbance, but by ankylosis. But before writing my paper, I had the good fortune to see a case that had been treated by a young friend (Dr. P. G. Udell), which seemed to me an almost ideal result. The foot, movable through a little more than half its normal extent, and free from pain in walking, was enabled to execute its function by the formation of a flail-joint after the resection of an inch and a half of the tibia and fibula. The novelty of the method consisted in leaving the two malleoli attached to the astragalus and bringing their fractured extremities in contact with the resected end of the bone. Granulation was the result, of course. Drainage and carbolic acid solution were employed to secure antiseptic results.

Six months reflection and experience have induced a change in my opinion as to resection of the malleoli in these cases. I would now, in nearly all, reduce and rely on cleanliness and antisepsis. There are cases, of course, where the crush is so severe that there can be no doubt. But when the rupture is great, better opportunities are given for the inspection of the surfaces, than when the opening is small. The resection may be secondary and the amputation tertiary.

The microbal discoveries of Pasteur and Koch and their disciples have placed all of our therapeutics on a new basis. The subject is trite, we hear of little else. No one knows when a real discovery is made how far it will reach. It always seems to run like a thread through the woof of all knowledge. How can we measure the scope of a piece of glass ground to a lens? The spectroscope was a mere philosophic toy at first; what now?—the analyst of the sun as well as of the blood. No one can now measure the possible triumphs of surgery. That which was excellent yesterday must be abandoned to-day. I confess, after long years of practice, to a delight that has the glow of youthful enthusiasm when making a resection of the knee under the use of mercuric chloride, and closing up the wound with silk sutures and applying drainage tubes in each corner of the wound, and then covering the whole with absorbent cotton saturated with the same microbal enemy; to remove the whole at the end of two weeks with complete closure, every suture encysted and not a drop of pus. Of course, there was no fever, only physiological repair. Or even to witness, perhaps, a more difficult feat in a much more common condition, the neat apposition of the tissues of a hand lacerated by machinery, while a stream of the antiseptic solution flows over every part, and the retention of these tissues in their proper position is effected by sterilized catgut, the whole protected with absorbent cotton saturated with the solution. At the end of a fortnight the sutures have disappeared, the repair complete, without a drop of pus. Such are now the experiences of all of you, and need no enlargement of statement. The surgical atmosphere is now antiseptic. Lister must now take his place beside Jenner. For the time, he has added a word to the language, and we do not mean merely carbolic acid and the spray when we speak of Listerism. There is already a wide range of material to choose from.

It is, however, obvious that there is a constant tendency toward the employment of the mercuric chloride, notwithstanding the objection raised by Prof. Billroth and his preference for iodoform. Its accessibility, its inodorousness and enormous power as a germicide will easily account for this. The natural fear of its powerfully toxic effect has rendered us all cautious, but more knowledge of good methods is expanding its application.

Who has not dreaded the care of a compound fracture of the thigh? But now we have report by Professor MacEwen of 1000 cases of osteotomy and no bad results. Who a few years since could have accepted the statement, that the bone could be cut and crushed, the surface broken and driven into the texture of the bone above and below, and yet remain absolutely free from the danger of necrosis and ready for union? The operation is essentially subcutaneous. But Dr. Hahn, of Berlin, boldly incises the soft parts and exposes the surface of

the tibia under a stream of mercuric solution, regarding this operation as secure as the subcutaneous cut, and as the parts can be seen they are more susceptible of proper management. In all these cases merely the quiet necessary to physiological repair, with its antiseptic covering, comprises the after-treatment. Its simplicity and rapidity of result amaze one. Perhaps, however, the best illustration of the value of the treatment that renders wounds aseptic is to be found not in those that MacEwen has made, but in those that have resulted from accident, which we recognize as compound fractures. They are at the deepest part of the limb and present every form of wound in the same case known as incised, punctured, lacerated, and contused. They have always been the terror of the surgeon.

At present the record of the triumphs of antiseptic surgery flows from every hospital. It would be burdensome to quote much, but the tables of Volkmann give at a glance the whole history of the modern leap in surgery. It has always been the misfortune of old hospitals to be the places where the greatest mortality would ensue when a wound was to be treated. It is not necessary to enforce this statement by any large collection of statistics, but I cannot pass by the consideration of this subject without quoting the extraordinary tables of Volkmann. He has collected the facts from the hospitals of Germany and England, and found that the results in all were similar in a very remarkable degree. He found that of 885 compound fractures of the limbs, 339 deaths resulted, whether preserved or amputated, being 38½ per cent. This in civil life. In military hospitals the percentage was $23\frac{6}{10}$. The difference may be easily accounted for by the fact that many of these were recently constructed and often extemporized, and also that the average age of the subject was during the firmest periods of life. The approximation in results in the various civil hospitals is shown very simply.

In Göttingen, the mortality was 38 per cent.					
In Zurich	"	"	"	$38\frac{7}{10}$	"
In Breslau	"	"	"	$40\frac{5}{10}$	"
In Halle	"	"	"	$40\frac{6}{10}$	"
In Bonn	"	"	"	$41\frac{8}{10}$	"

Since the adoption of an antiseptic method, Volkmann makes report of 75 cases in 73 patients with compound fractures and many with injury of the joint, and not a single death. Of these there was the extraordinary number of 21, or 28 per cent. of all cases. 11 of these were treated conservatively, and there was but 1 that resulted in ankylosis. 1 was a shoulder-joint which was resected. The elbow-joint was opened six times, of which there were made one primary, and three secondary resections. 2 were treated conservatively. The knee-joint was opened four times and treated conservatively. The ankle was opened six times. 2 were treated by secondary resection. 1 by amputation. 3 were treated conservatively. The management was simple. In the first place protracted drenching with water, the removal of spiculæ and trimming sharp ends of bones, enlarging the wound always enough to allow exploration with the finger, and then causing it to gap by retractors, while the drenching was going on, not stopping until the last coagulum was disposed of; then completing the irrigation by a drench of carbolized water. After the proper replacement of parts the whole was covered with abundant layers of carbolized gauze, and kept free from accumulation of fluids by drainage tubes. Most of the cases were seen a few hours after the injury. Five, however, were treated after a delay of forty-eight hours.

The great achievement of the day, however, is by common consent the marvellous growth of laparotomy. During my early career, the removal of an ovarian tumor, notwithstanding McDowell's success, was stigmatized as murder, which, indeed, it seemed very often to be. Dr. Atlee was fiercely denounced for his efforts to bring this operation into the ranks of legitimate surgery, which he lived to see fully established. But through what a valley of death have the wonderful results been obtained. It is now but fourteen years since Keith electrified the whole surgical world with the report of ten consecutive cases and only one death. Two years after Dr. Atlee remarked to me, after performing an operation of this kind, that if it should succeed it would be the tenth consecutive good result. It, however, failed. By what slow approach have we arrived at the present simplicity of operating. The manipulation is simple, but delicate beyond the necessities of ordinary surgery. How difficult to apply what we call experience. Surely every surgeon had seen enough of the danger of opening the peritoneum, to fear its terrible inflammation, which we have often seen run over the whole immense surface, even to its remotest recesses, beginning at a wounded point. Experience was ample. How could we dare to defy the results of such knowledge? But from the recognized fatality of the tumor, and the distressing condition under which life was maintained during the latter period of its existence, we should have known but little of the dangers to be avoided and how to combat them. How long a time it required to learn, that, after all, it was not peritonitis that we were chiefly to fear. We had to learn that the whole immense surface was but little else than the expansion of the lymphatic system, as the skin is of the nervous one. And when the blood mixed with the contents of the sac that had been left behind, excited first a secretion from the surface for their solution preparatory to their absorption according to the natural law for their disposal through the blood, we encountered on the autopsy the fearful red serum.

Too much was to be done. Even our therapeutics misled us. I still accept the correctness of the opium treatment in genuine non-traumatic peritonitis. We owe a great debt to Dr. Alonzo Clark for the careful development of its excellence in this condition. But our pathology was a mistaken one, and I cannot but think that the mortality is increased in the cases first mentioned by the use of opium. How much to unlearn and how hard in the face of our experience?

Who has not looked into the peritoneal cavity during an operation and hardly dared to touch it, preferring to leave some blood and sac contents, rather than touch the inflammable surface. But the death of Keith's eleventh case struck the keynote. The peritoneum must henceforth be clean. To our astonished gaze the membrane could be sponged, and washed, and dried, and then it quietly removed the small amount that the sponge could not absorb. From this time the death-rate diminished in the hands of every operator, and the note has become universal that the basis of all antisepsis is cleanliness. Even the exudation from peritonitis must be removed, according to Mr. Tait, who has for this condition washed

out the cavity with water that flowed from the city tap, and which, according to a friend with microscopical knowledge, contained "thirty-six different kinds of beasts." "You reject antiseptic medication," said I to Mr. Tait, who replied: "Yes, it is all rubbish; there is but one antiseptic that I know of." "Pray, what may that be?" "Soap and water." Again it is cleanliness. It would be idle to say that surgeons did not esteem cleanliness as going a long way before godliness in operations. But it was not of the precise and thorough kind that was demanded.

I will leave the statistics that Mr. Tait has given us, out of our consideration. They transcend those of all others who have undertaken to follow in his footsteps; so as to lead one to believe that there are some problems unexplained. The operation for the removal of an ovarian tumor is by common consent, in its various conditions, at times the most difficult one of execution that ever comes under the hands of the surgeon. At other times it is the type of simplicity. These circumstances give an opportunity for a wide difference in the results of operative procedure intended to be similar. There is a preponderating opinion that direct antidotes to the processes that seem to control the poisonous results of suppuration, increase the percentage of favorable termination in cases that have been operated upon. Their use marks another step in the treatment of wounds accompanied by exposure of the peritoneum. Mr. Tait's results are to be regarded as unique, and surgeons are not likely to omit proper antiseptic measures. We are still in the midst of change, but the splendid record of expert operators as we all know, has removed this operation from a mortality that seemed murderous to one that is less than any operation of a capital character. That this result has been obtained by constant attention to the action of natural law is too obvious to be denied.

Several years since I removed a uterus containing a fibroid weighing seventeen pounds. The cut extended nearly the whole length of the linea alba, before it could be drawn through it. The vessels were ligated on the sides, and then I carried out my device for managing the stump, and guarding the peritoneum from the presence of the dreaded foreign body in the shape of ligatures or sutures. A slight incision was made all around the huge mass about three inches from the vaginal junction. This was dissected down and all around to nearly the point above mentioned. The vessels were easily seized and the blood was readily prevented from passing into the cavity of the peritoneum by the cup-like form of the cut. Amputation was made about an inch from its junction with the vagina, and at this point it had, of course, become small. But little blood flowed from this last procedure, for the vessels had already been secured. After hemorrhage had ceased the edge of the cup-like pedicle was pocketed in the linea alba. Thus peritoneal surface was brought against its congener. The intestines had fortunately been kept covered by the abdominal walls. Union of the wound in the linea alba was perfect. A drain down through the neck of the uterus seemed to me the most perfect of appliances. I fondly hoped that this was all that could be desired. But I had at this time no means of antisepsis. Now Péan, as reported by Dr. Senn, closes over the stump with catgut sutures, after having extirpated the mucus membrane of the neck, and brought the abraded surfaces together by a sort of autoplasty, and drops it back into the pelvis. As an operative procedure this seems to me to be final.

But the exposure of a joint to the atmosphere is far more apt to result in inflammation, with a tendency to suppuration, than the peritoneum. But now we follow the nests of bacilli into the joint with a sharp spoon, and filling all nooks with an antiseptic solution, close the capsule with the assurance of freedom from any active inflammation, especially of a suppurative form. This is surely one of the most extraordinary triumphs of antisepsis.

I must not omit, in this sketch, the important step in advance that was declared in the papers by Prof. Andrews and Dr. Watson, delivered before this Association last year, on the treatment of carious wounds by the use of a solution of hydrochloric acid 1 to 20. *A priori*, every one felt that such a strength of acid must be so irritating as not to be tolerated. But coming from such authority I at once adopted the method, and I desire to say, that I regard it, as one of the great advances in surgery, free from danger or even irritation, and replete with power. Moreover, we have at the same time an agent that removes the dead and does not injure the living bone, and is also a valuable antiseptic.

Neither must I fail to speak of one of the stages in the progress of research which is marked by the attempt to obtain sterilized air. As we all know, Lister's spray has occupied the largest place for this purpose, with a reputation much waning, and entirely abandoned as worse than useless in laparotomy. Let any one make the experiment of throwing the spray upon a plate of glass for a few minutes, and he will find, by the employment of a lens, that the rush of the vapor has drawn in and deposited upon the glass every floating particle in the atmosphere, thus concentrating the minute foreign bodies instead of dispersing them. Independent of the poisonous carbolic acid, rapidly absorbed from the large surface of the peritoneum, we would make a special deposit of foreign bodies, which, though minute, could be aught but useful. But long before Lister's time, a plan of enclosing the part to be operated on in an atmosphere of nitrogen was attempted. The difficulty of executing the procedure to a successful termination arrested the experimentation. Many years since I myself entertained the hope that benefit would accrue from the pouring of carbonic acid gas over the wound and into the cavity during a laparotomy, thus excluding the atmospheric air. But without sterilized hands and other necessary apparatus, the method was comparatively useless, and with the proper antisepsis became comparatively unnecessary.

We also find Dr. Prince sterilizing the atmosphere of the whole operating room, and a Boston hospital supplied by air from the roof, which, being carried to the basement, is passed over heated plates in winter, and thence distributed over the building. Burning sulphur is a common method of preparation with which all are familiar. Perhaps we may yet choose a room whose air shall be purified by its passage through sterilized cotton, or through tubes in imitation of Tyndall's glycerine box.

It is the glory of the time that really great men among us are not so marked by a wide separation from their colleagues, such as prevailed one hundred and fifty years ago. Then there was but one John Hunter, and he remained without peer, and with few followers. Meeting one of his contemporaries when he was carrying home

some pig's feet from market, for the purpose of anatomical inquiry, he was sneered at for busying himself about pig's pettitoes. To-day, the pettitoes on such a mission would be enclosed in a nimbus. We have now a Koch who leads, but there is a large following close at his heels. We have Atlee and Spencer Wells, but almost at once, their followers appear everywhere, and outstrip their teachers.

ADDRESS IN PUBLIC MEDICINE.

Delivered May 11, 1888.

By H. P. WALCOTT, M.D.,
CHAIRMAN OF STATE BOARD OF HEALTH OF MASSACHUSETTS.

When a committee of this body invited me to deliver the address which Dr. Cabell felt himself unable to undertake, I accepted the invitation with much hesitation, well aware that in attempting to fill the place which all had hoped to see occupied by the honored head of our first, unfortunately, perhaps, our last national health organization, I should fall far below your just expectation.

Mingled with this natural reluctance is also the knowledge that I have not the oratorical skill to repeat in any new or attractive manner those general statements as to the claims of hygiene and State preventive medicine upon the public and our profession which have been so often and so eloquently brought to your attention.

Neither am I quite willing to limit myself to an attempt to describe the progress of public preventive medicine during the past year. But I shall assume that my text has been given me in the fact which is probably the reason for my invitation to occupy this most honorable place,—I mean my connection with the State Board of Health of Massachusetts, now in the twentieth year of its existence.

This board has passed through experiences which are more or less true of every other State Board of Health in the country; it has sometimes failed where success was due, and has succeeded where defeat seemed inevitable. It has illustrated the various stages of progress in the attempt, on the part of the State, to prevent disease; and has also, at some periods in its history, suffered from the interference of politicians and self-seekers.

This story, interesting as it might be in Massachusetts, would be quite out of place here, were it not true that we also have a fairly kept record of our vital statistics from the year 1842 to the present time.

Therefore, it has seemed to me that it would not be unprofitable, in this twentieth year of State preventive medicine, that I should attempt to answer some of the questions that may fairly be asked of those who have had a share in the public responsibility for the prevention of disease.

You will not need the assurance, I hope, that the example of our own State is used in no limited and provincial spirit. We have not hesitated to borrow, from our brothers in other States and countries, anything that offered the slightest promise of help in the unending struggle for the preservation of human life. We have relied upon their counsel and assistance, and have not been disappointed. On the other hand, the legislative act by which our board was established, has served as a model for many of the organizations subsequently formed. Our interests then have been common; our methods similar; and the results will not be much unlike.

Another reason for using this local experience lies in the fact that our restricted territory and comparatively large population have brought about conditions which, fortunately for the majority of the States of the Union, will remain in the distant future; but which, sooner or later, will come to all, and almost inevitably sooner than they are expected.

That these experiences can be submitted to no tribunal so competent to interpret them correctly as the medical profession, is a proposition which scarcely needs an argument.

The State Board of Health of Massachusetts was established by legislative action in 1869. Local boards of health of not much efficiency had existed from the beginning of the century. The State board entered at once upon its duties, which were advisory rather than executive. Under the lead of wise men the public intelligence was quickened upon all the important sanitary questions to such a degree that the succeeding years brought to the board added executive powers and larger appropriations. Seven thousand five hundred dollars were appropriated for the work of the board in its earlier years, sixty thousand dollars are the conclusive evidence of the peoples' belief in the value of protective medicine, and this does not include the large sum spent upon the registration report.

After ten years of most successful administration, it was thought advisable by the Legislature of the day to extend very widely the functions of the board by reorganization and the addition of the powers of Commissioners in Lunacy, and of the supervision of the public charities. The burden proved too great, and, after a few years, the original organization was restored, with enlarged powers.

The rights of the people to pure air, soil, water, and food, are recognized by the laws of the Commonwealth, and various statutes have been passed to secure these rights, and to prevent their infringement.

The board is charged to some extent with the duty of enforcing these rights, and preventing and punishing any violation of them, having for this purpose powers coördinate with those of the local boards of health.

The business of investigating and gathering information as to any matter pertaining to the public health, and of diffusing such information among the people, is also included in its functions.

Among the matters of which it thus takes cognizance, are the causes and prevention of infective diseases. For this purpose coördinate powers are given to the board with every local board of health, namely, the suppression of nuisances, including the regulation of noxious and offensive trades; the collection and diffusion of information relative to industrial hygiene, or the effects of different occupations, industries, and domestic pursuits upon people at various ages and under various conditions of life; the hygiene of schools, school buildings, and public institutions; the examination and investigation of public water supplies, and the prevention of their pollution; the investigation of drainage and sewerage places or systems, so far as they relate to the public health; the disposal and transportation of the dead; the inspection of food, drugs, and other articles affecting the public health; inquiries relative to the amount of intemperance from the use of stimulants and narcotics, and the remedies there-

for; investigations as to the infectious diseases of animals, so far as they may affect man; the editing of the registration report of the State.

What effect has all this had upon the health of the people as shown by the mortality rate? For that is the only trustworthy standard, under our present means of registration, by which to determine the effect of measures taken for the prevention of disease.

Without the assistance of well-conceived and carefully executed tables of vital statistics, communities are liable to the most erroneous impressions as to the actual effect of their surroundings upon the public health. Hence, our legislation in sanitary matters is in constant danger of becoming the reflex merely of vague rumors, hasty and incorrectly formed conclusions, or statements based solely on commercial and interested motives; unless it is distinctly understood that the devotion of human life, the disease by which it is cut short, and the preventable or inevitable character of the disease, so far as we now understand these qualities, are things which can be determined by intelligent and continuous investigation by experts, and should be no more the subject of guesswork than the truths of mathematics or the facts of chemistry.

Inasmuch as the task I have taken upon myself is the proof of the value of preventive medicine, let us take not the mortality rate as a whole, but the rates from certain specified diseases which are admitted to be controllable by means of vaccination, isolation, disinfection, or suitable sanitary precautions.

Let us then compare these rates in successive years, not only with each other, but also with the rates of those diseases in respect to which we possess no well-recognized powers of prevention. This comparison shall be made during the period of existence of our State Board of Health; not with the presumption that statute regulation, either in the hands of a State or municipal board of health, deserves all the credit of the improvement obtained.

During this period there has been an active and intelligent interest in all sanitary questions, steps have been taken on all sides for procuring purer water supplies, better drainage, food and drugs free from adulteration, tenement houses have been much improved, sometimes by private undertaking, and oftentimes under the compulsion of the law. But in all these movements the influence of the sanitarian has been predominant, and the improvement in the health of the people is regarded as the only just measure of success.

When regard is had to the facts that Massachusetts is one of the oldest settlements in the country, and, with the exception of Rhode Island, the most densely populated State in the Union, it would not be surprising were we to find there a relatively high death-rate. This would be true, even if the conditions which favor health there were equal to those found in other States.

The average death-rate for the thirty-six years, 1851–1886, was 19.40 per thousand living, the lowest death-rate in this period was 16.99 in the year 1867; the highest death-rate, that of 1872, being 22.85 per thousand. It was 18.38 per thousand in 1869, and 18.85 in 1886, the last registration year. So far then as these figures go, we have no changes of consequence.

But if we turn to the general classification of causes of death into zymotic, constitutional, local, developmental, and violent, we find that there has been an almost constant decrease in the class of zymotic diseases during the period now under consideration.

PERCENTAGE OF CAUSES OF DEATH BY CLASSES.

YEARS.	CLASSES.				
	Zymotic.	Constitutional	Local.	Developmental.	Violent deaths.
1870	25.6	26.6	28.1	15.6	4.1
1875	28.6	24.3	31.8	11.2	4.1
1880	24.5	23.7	38.8	10.1	3.7
1885	19.0	23.2	42.7	10.7	3.9

The years taken are census years.

The changes in the class of constitutional diseases have not been so marked as in those of the zymotic class, although the tendency appears to be constant in the direction of a decrease.

In the class of local diseases there has been a decided increase, from 28.1 in 1870, to 42.7 in 1885.

In the class of deaths from developmental causes, the changes in the last three census years are insignificant; as this class contains the deaths from teething and old age, it is to be expected that more accurate diagnosis will diminish its relative importance.

The percentage of violent deaths remains throughout essentially unchanged.

If we arrange the percentages of causes of death from zymotic diseases in two columns of ten years each, we shall find in the first decade, from 1867–1876, the average of these percentages to be 27.94; in the second decade, 1877–1886, the average has fallen to 22.4.

Let us examine more carefully the diseases which we have a reasonable hope of preventing by appropriate sanitary regulation. We shall find at the head of the list a disease which we can with certainty limit, if not abolish. As we pass down the line we shall come to diseases which are more and more dependent upon the special treatment of a physician and surgeon; and which can be but slightly, if at all, affected by the surroundings which the public officer of health can control.

It seems, however, to be true that with each succeeding year a larger and larger number of these are found to be the result of influences that can be removed.

For the first time in the registration history of the State, a year has passed without the record of a single death from smallpox; and this, notwithstanding the fact that we are in continual communication with countries where the protection of vaccination is not so generally given as it should be. One of our chief industries, also, the manufacture of paper, involves the use of materials which always carry with them the possibility of the presence of the contagion of this most persistent disease.

Many years of comparative immunity from smallpox had led to a disregard of the stringent laws for compulsory vaccination; and the State paid the usual penalty in 1872 and 1873; the mortality in the former of these years reaching 2.9 per cent. of the deaths from all causes, with 1029 deaths from smallpox.

The attention of the authorities was aroused, existing legislation was rigidly enforced, and additional powers,

when found necessary, were obtained. There has been no year since 1873, when the percentage of deaths from this cause to deaths from all causes has reached fourteen-hundredths of one per cent. (0.14).

Typhoid fever has, upon the whole, diminished both relatively and absolutely. In 1886, the percentage of deaths from typhoid fever to deaths from all causes was 2.15; in 1872, the year of greatest prevalence within the twenty years, the percentage of deaths from typhoid to deaths from all causes was 4.86—and the death-rate per ten thousand living was 11.1.

The diminution in the death-rate from this disease has been especially marked in cities with pure water-supply and good systems of sewers. The death-rate from this cause is substantially unchanged in the small country towns.

The death-rates from typhoid fever, per ten thousand living, in the census years 1865–1885 have been for the whole State

1865.	1870.	1875.	1880.	1885.
13.4	9.1	6.4	4.9	3.9

Scarlet fever has more than once astonished the medical world by a sudden assumption of great violence and fatality after many years of comparatively harmless prevalence. Graves has called the attention of the profession, in a most instructive manner, to the experience of Dublin, where from 1804, when an epidemic of great malignancy had come to an end, until 1834 the scarlet fever that occurred was very mild, at the latter date the disease burst in upon the city with all its old ferocity. It is, therefore, with some reservation that I use the figures of the registration as to this disease.

The record for thirty years shows a death-rate, per ten thousand living, reduced from 17.2 in 1857, to 1.7 in 1886. It is possible that we are only nearing the end of a series of benignant years, and that another may see the return of an epidemic over which we shall possess little control; still, it is the belief of our best observers that isolation and disinfection have had a sensible effect upon the spread of the disease.

Diphtheria first appeared in our registration in 1858, causing in that year eighteen deaths, reached its highest degree of prevalence in 1877, and since that year has much diminished in frequency, but has not again sunk to the low figures of the years 1870–73, when it constituted less than one per cent. of the deaths from all causes.

If in the present uncertainty of medical *diagnosis* with reference to croup and diphtheria, it is desirable to consider them together, and all deaths from croup are added to those resulting from diphtheria, we should not obtain conclusions essentially different from those above stated. An examination of our record shows that the reported deaths from croup are slowly and steadily falling in number, and that the two diseases rise and fall together in the scale of prevalence.

It is probable, therefore, that a more accurate diagnosis will hereafter transfer to deaths from diphtheria many cases which would in times past have been assigned to croup.

The relation of diphtheria to the grosser forms of insanitary conditions is not yet clearly made out. There is also a probability that some of the lower animals are attacked by it.

The degree of its prevalence in Massachusetts, in the United States Census year 1880, was almost identical with the rate for the whole country; the general rate was 5039 out of 100,000 deaths from all causes, the rate in Massachusetts was 5010 to the 100,000. In England, in 1880, the rate was only 532 per 100,000, which does not vary essentially from the rate of the ten years preceding.

In the city of Boston, a notification to the Board of Health of all cases of diphtheria, as well as of certain other communicable diseases, is compulsory.

The Board in such cases causes a careful inspection of the premises to be made; in the year 1887, when 1049 cases with 316 deaths were reported, 927 houses were examined; 534 were found to be in defective sanitary condition, 393, on the contrary, were in good sanitary condition.

A rigid inspection of 900 houses, taken at random in any city would, I think, not be unlikely to show nearly as large a number of houses that would fail to satisfy an examination which is very apt to start out with the determination to find some sanitary defect.

It is a communicable disease in a very marked degree, but does not appear to have any other relation to filth than this, that the absence of proper cleanliness, and the presence of the material of contagion in the food, person, or surroundings are quite sure to go together.

It may also be assumed to be probable that a number of mild cases of the disease always exist, and are the unsuspected vehicles of the contagion. We know this to be true of almost all the diseases of this class, and I think we have hitherto taken the probable existence of such cases too little into account.

The diarrhœal diseases, including diarrhœa, dysentery, cholera infantum, cholera morbus, and enteritis, have only changed place in the list as cholera infantum has varied.

Cholera infantum during the period of twenty years has diminished, though the fall has not been regular; dividing the period of twenty years into two decades, the average of the first yields a death-rate from cholera infantum of 13.51 per 10,000 living, the second an average of 10.32 per 10,000.

Dysentery, which in the first half of this century had several times appeared in epidemics of great severity, has thus far in the second half been steadily diminishing in importance. The improvement in domestic water supplies appears to have had some influence upon this reduction in number, so far at least as the question has been studied in certain cities in the State. Only 243 deaths out of a total of 37,244 are assigned to this disease in 1886, the smallest number recorded during thirty years.

Malarial fever caused, in 1886, 32 deaths, of which number 20, or 62.5 per cent., occurred in the five western counties which have but 26 per cent. of the population. Although serious epidemics have occurred in the eastern counties during the years 1884–'85–'86, they have thus far had little apparent effect upon the death-rate.

Statistics of disease, as well as those of mortality, would be an additional index of very great value for the sanitary condition of a district. In the case of the disease now under consideration, they would be of unusual value because portions of our State, exempt during the whole existence of our settlement, have been invaded by malarial fevers, and yet the resultant mortality has been insignificant. We can only say that malarial fevers

have increased beyond the increase in our population, and that this tender exotic has in New England found unfortunately some new conditions which favor its development.

The number of deaths from measles has been very variable through this period, this variability in mortality was more noticeable in the last half than in the first half of the period. The average of the latter half was also less than that of the first half. The number of deaths has ranged from a minimum of 19 deaths in 1879 to 428 in 1872.

The number of deaths reported as due to consumption in 1886 was 5897, the percentage of deaths from this disease to deaths from all diseases was 15.83. Arranging the deaths from consumption in two periods, 1867–1876, and 1877–1886, the average of the second decade is found to be 2.5 per 10,000 living less than that of the first decade; that is to say, from 33.7 to 31.2. There thus appears to have been an actual decrease in the deaths from this disease, and more marked in the second decade than in the first.

Our registration in its present form gives us no satisfactory answer to one of the most important questions that arises in the consideration of this disease. How often and under what conditions is the predisposition to consumption hereditary?

It is in the very nature of our life unavoidable that every individual must, at many times, be exposed to the contagion of tuberculosis; and yet it is within every physician's experience that many members of families with distinct histories of consumption in more than one generation do escape.

One of the most important and widely spread influences upon the origin and extension of consumption was announced twenty-five years ago by an honored President of this Association, the father also of State medicine in Massachusetts, and fortunately still living at an age, which, in him, one hardly ventures to call old, Dr. H. G. Bowditch, who, by his announcement and proof of a law of soil moisture and land drainage, in their influence upon consumption, has turned the attention of the world to conditions which can be controlled.

Pneumonia has generally held the second place on our mortality lists, and has not diminished in relative frequency in recent years.

The total number of deaths reported as due to cancer, in 1886, was 1104, the rates of fatal cases among females to the whole number has increased as follows:

1881 . . .	64.4	1884 . . .	66.6
1882 . . .	64.9	1885 . . .	68.8
1883 . . .	67.6	1886 . . .	69.7

If the statistics of cancer for twenty years are divided into two ten year periods, with death rates per 10,000 living, we shall find that there has been an increase, with a certain degree of uniformity, from 2.9 per 10,000, in 1867, to 5.6, in 1886, nearly double. In England and Wales very much the same increase has been noted, the proportion of deaths from cancer has increased regularly from 2.7 per 10,000 living in 1847, to 5.3 per 10,000 in 1882.

The number of deaths, in 1886, from the group of diseases attributed to the brain, was 3844, which, though a little less than in 1885, was still larger than that of any other previous year.

The mortality rates per 10,000 in the Census years, 1860, 1865, 1870, 1875, 1880, 1885, were, respectively, 12.06, 14.39, 14.35, 16.42, 17.0, 20.01.

Deaths from alcoholism appear to have diminished in number, but it is confessed that the death-rate ascribed to intemperance directly is but an imperfect measure of the evils resulting from an excessive use of alcohol. Neither do the figures of the report convey any just idea of the actual or relative prevalence of the venereal diseases.

The fact that Bright's classical description of the diseased processes in the kidney, known by his name, was first published in 1837, and the slow progress made in the accurate medical diagnosis of these diseases during the half century, would lead us to expect in these diseases an apparent, marked increase from year to year. It has been assumed, also, that the conditions of modern life have brought about a large actual increase, either from irregular and luxurious living, or improper indulgence in food or drink. It has been claimed by some that the substances now frequently added to standard articles of food and drink, for the purpose of adding to their keeping qualities, or of fraudulently adulterating them, have an injurious effect upon these organs.

The difficulties of answering these questions is much enhanced by the fact that in the early years of our registration, when the real nature of diseases of the kidney was but imperfectly understood, very many of the deaths really due to this class were registered under the head of dropsy, another large class would appear as diseases of uncertain seat, and diseases "not specified."

With these facts in mind, let us tabulate the deaths from Bright's disease and other diseases of the kidney in one column, and the deaths from dropsy in a parallel column.

From an examination of the registration report of 1850 it appears that out of 16,606 deaths, there were 18 under the heading of Bright's disease, a ratio of 1.1 to total mortality per 1000; from dropsy, 416 deaths were recorded, a ratio to the total mortality per 1000 of 25.

In the years following the number of deaths in the first class has rapidly and steadily grown, reaching, in 1886, a total of 1135 deaths, a ratio to the total mortality per 1000 of 30.5; while the deaths from dropsy have as steadily, and almost as rapidly, decreased from a ratio of 25 per 1000 to 5.9 per 1000.

If we now add the deaths from kidney diseases to the deaths from dropsy, we obtain a ratio to total mortality per 1000, beginning, in 1850, with 26.1, and reaching 36.4 in 1886.

This is an increase startling enough to attract attention, and require investigation, but still not of the alarming character attached to the apparently overwhelming increase of Bright's disease and other kindred affections.

We have no evidence in Massachusetts that any of the substances generally used for the preservation or adulteration of food and drink have a markedly injurious effect upon the kidneys.

Another lesson may be extracted from these figures, it is this, that statistical nosologies, as well as laws for the protection of the public health, are educational, and founded upon the learning of experts, and will inevitably break down if they are too far in advance of the common knowledge.

The figures also show that in a sufficiently extended

series of years an explanation of an apparent discrepancy may sometimes be discovered.

This hurried glance at the registration tables will have shown this, I think, that in all the preventable diseases there has been a steady reduction, most marked in the case of smallpox, a disease that can only seriously affect a community through inexcusable neglect. I will not weary the ears of this assembly by dilating upon a subject on which all health authorities are agreed—the necessity for compulsory vaccination and revaccination, so long as the system is susceptible of the virus.

A single comparison may be made to demonstrate the saving of life in consequence of better sanitary conditions established by the authority of a board of health.

Probably no single instance of a surgical interference in a disease inevitably leading to early death, has attracted more attention, has deserved more admiration or has added more years to human life than the operation of ovariotomy.

The largest number of deaths in any one year in Massachusetts from ovarian dropsy was 51. We will assume that all of these lives might have been saved by ovariotomy.

Let me take now the city of Somerville, a suburb of Boston, with 29,971 inhabitants, by census of 1885, with natural conditions of soil of varied character, partly favorable, partly unfavorable, with a mixed population almost wholly occupied with business, trades, manufactures, and day labor. It has had an energetic and intelligent Board of Health, who have used the large powers conferred by our statutes wisely; they have a system of compulsory notification of the communicable diseases, rigidly enforced; they practise, so far as possible, isolation and disinfection. During their active administration and almost wholly in consequence of it, as I believe, the death-rate of the city has been reduced as follows: The present organization of a municipal Board of Health was established in 1878. In 1875, a census year, the death-rate was 22.86 per 1000; in 1880, 17.1; in 1885, also a census year, 16.68. The improvement is more marked yet, when certain unfavorably situated and crowded quarters of the city are separately examined.

But this examination is scarcely necessary to prove that the interference of a public health authority with ample powers and with such sanitary regulations as we can now carry out has saved more lives in a community of 30,000 people in a single year than could have been restored to health in the same period in a State of nearly 2,000,000 inhabitants, by an operation justly regarded as one of the greatest triumphs of American surgery. It may be objected that with all this apparent diminution in the mortality from selected diseases there has still been no reduction in the general death-rate, so far at least as the figures of the report are to be taken in evidence.

It is unfortunately true, that our reports had in the earlier years a less degree of accuracy than they now have, and that deaths were not so generally reported then as now. The records for the year 1855 were very carefully examined for the purpose of determining the completeness of the enumeration of the deaths in that year. It was estimated by a competent authority, as the result of this examination, that not far from sixteen per cent. of the deaths in that year had escaped registration. It is now confidently believed that this deficiency does not exceed two per cent.; the registration by means of burial permits is now subject to revision by local boards of health as well as by municipal recording officers, and has become much more trustworthy.

Apart from fluctuations in the returns of deaths to the registration offices, there are reasons for believing that some of the conditions are not now so favorable to health as they have been.

The proportion of the population engaged in factories has largely increased; larger numbers of the people absolutely and relatively live in cities subject to the insanitary influences that prevail there.

In 1870, 63 per cent. of the inhabitants of the State lived in cities and towns of more than 5000 people. In 1885, the proportion had arisen to 73 per cent. There has also been a large addition to the native and presumably hardier population of immigrants from foreign countries, whose adaptability to our climate and conditions of life is still uncertain.

Too great expectations seem to have been raised also by the very brilliant results of sanitary work in the older countries. Men had to deal there with all the evils incident to sanitary neglect that had endured for centuries, and in great cities at that. Here, on the other hand, the cities have contained a relatively smaller part of the total population and there has not been the same opportunity given for obtaining a result so striking as the reduction in London's mortality rate; for instance, from the high figures of the beginning of the century to her present fairly earned position of the healthiest very large city in the world.

It may be of interest, in this connection, to call your attention to some of the diseases which have attracted general attention, perhaps excited more interest in the public mind than all the other causes of death combined.

In forty-five years and eight months, ending 31st December, 1886, the registration reports of Massachusetts enumerate the deaths of 1,163,571 persons.

Smallpox has killed 5572 in this period and has given rise to more legislation than any other single disease, and is the one most easy to be controlled. One provision of law is the beginning and end of its regulation—that is, compulsory vaccination and revaccination.

Scarlatina has destroyed 37,666 lives, permanently impaired the value of a very large but unknown number, and the attempt to prevent it by sanitary regulation belongs to recent years.

Typhoid fever has been fatal to 45,781 human beings, generally in the prime of life, with an origin almost always in fecal pollution; it becomes epidemic whenever that pollution reaches a water supply, or food, especially milk. The general conditions which sustain this disease in its endemic form and favor its epidemic spread are the same which produce general unhealthiness. It has been well said that an epidemic of typhoid fever is a sanitary crime, and should be treated as such. But the peculiar history of this disease has had but little influence on legislation of a useful kind at least.

Epidemic cholera, the most persuasive apostle of sanitation that has been permitted to land on our shores, has destroyed, from 1832 to this year, not more than 2000 lives in all. In no one year, excepting 1849, the year of greatest prevalence, has it proved so fatal as scarlet fever, croup, typhoid fever, dysentery, pneumonia, whooping-cough, or apoplexy; and in 1849 even, the deaths from

cholera did not vary much from the greater part only of the deaths from consumption.

Hydrophobia is represented by seventy-two deaths; more than one-half of these occurred in the four years 1876–1879. There have been no deaths from it since 1881.

Thirteen deaths from yellow fever have not been considered of enough consequence to be given a place in the general summary. They occurred at the quarantine station at Boston, and may not, perhaps, have recalled to any public health officer's mind the fact that about the beginning of the century, yellow fever had, in more than one year, been a pestilence in the city itself.

Our experience in State preventive medicine has proved this, that while great good can be done to any community by the establishment of boards of health, whose functions are largely those of instruction and advice, it is certain that, sooner or later, the people will place in the hands of those capable of exercising such powers the machinery for making that advice effectual. And this has happened with regard to every subject which has been successively made an object of inquiry. There is now ample authority for the control of public water supplies and systems of sewerage; sufficient legislation to punish and prevent the adulteration of food and drugs.

One of the most encouraging signs is the more intelligent view taken by the public of questions to which self-interest seeks to attach a sanitary significance.

Perhaps the much-vexed question of "oleomargarine" may be taken as an instance. We have in this substance a legitimate commercial product which, when properly manufactured, is a safe and useful addition to our food supply. It can be so made, and is so made. When sold as natural butter it becomes an impudent fraud, and should be punished as such. But it is no more a matter of concern to sanitarians than the proper making of butter itself is, and some of our legislative bodies appear so to regard it.

It has been well said by one of the most eminent of the executive officers of health, Dr. Russell, of Glasgow, that nothing is more conspicuous than the helplessness of the individual, under the conditions of civilized life, to secure the physical basis of health.

How can any single individual in a crowded city make any successful effort to improve or even to ascertain the quality of the public water supply upon which he is exclusively dependent? What can he do to secure a sufficiently prompt and safe removal of the waste materials of his daily life? How can he analyze the ingeniously sophisticated article of food or medicine which may represent the ingenious employment of all the scientific skill that selfish capital can purchase? How vain it would be for him to attempt to prevent the crowding of the city, or the contamination of the air which he is obliged to breathe. Lastly, how can he recognize the presence of communicable disease, and, recognizing, keep it at a distance?

There is no help but in coöperation on the most extended scale possible—individual, municipal, State, and national. The individual must be compelled to give up his liberty to injure his neighbor. The great city must be restrained from converting the stream that flows past it into a sewer that shall poison the villages that cluster about its banks lower down in its course. The country farm-house must no longer, when a case of enteric fever occurs there, be allowed to be a menace to the water that supplies a thousand city homes. No State should permit its own causes of disease, whether they are persons or things, to be transported into another State, nor pollute the common water supplies. Lastly, the general government should take cognizance of those causes of disease which can be controlled by no other power; or which are so general that the responsibility for them is national; or so overwhelming in their ravages that smaller political bodies have lost the power, if not the will, to protect the people.

Voluntary associations on the part of persons, towns, States, or nations even, will never establish a sufficient safeguard, when one dishonest or ignorant associate has it in his power to nullify all the effects of a neighbor's spirit of self-sacrifice and restraint.

Epidemic disease is an evil that cannot be left to work out its own cure, it widens its circle too rapidly, and the time is long past when any quarantine, using the word in its older sense, would prove sufficient to restrain a pestilence within the limits of the district whose sanitary crimes might have fairly deserved some punishment.

How, then, shall we organize for the protection of the public health?

For the individual, that he may not injure his neighbor through his own ignorance or that of his adviser, let the State give him some assurance that the legally used title of physician designates a person sufficiently qualified to give advice for the prevention and cure of disease, and a certainty also, that the quack who steals the title shall be punished.

Establish, by direct provision of State law, local health authorities for each well-defined unit in our various forms of local government—village, town, city, or country. Place in the hands of these authorities the execution of the laws of the State and all local ordinances and regulations pertaining to public health, impose upon them the duties of watching all those conditions which immediately affect the health of the people: water supply, sewerage, sanitary condition of school-houses and scholars, factories, tenement houses, and the markets; periodic inspection of the inhabitants to prevent the neglect of vaccination; house to house inspection at least annually. In brief, they should have all the powers which society assumes for protecting the public health.

To meet the possibility that some districts may not have intelligence enough to appreciate, or that powerful commercial or other interests may interfere with these laws, there should be a State authority with ample powers.

This would be called upon for the purpose of harmonizing the action of the various local boards, where the interests of various localities were involved.

It should have coördinate power with all local boards in cases of communicable disease, in order that its action may be prompt and salutary. It should be enabled to carry on scientific investigations as to the causes of disease; to suppress noxious and offensive trades, as it will often happen that some great industry will possess in a community an influence sufficient to control the local board of health. This condition did in fact exist in Massachusetts, and no act of our State Board of Health in its earlier years was more commended than that which transformed a town, pestilent and disgusting from some fifty slaughter-houses, into an attractive suburb of Boston. The business of slaughtering and rendering was not driven from the town, but was concentrated into one

well-regulated abattoir, from which there has never come a just excuse for complaint.

This authority should also have the supervision of the laws for the prevention of the adulteration of food and drugs.

It should have the general oversight of the public water-supplies.

It should have charge of the registration of vital statistics, and of the investigations of the diseases of animals, so far as they may affect the health of man.

The educational element should always be present in the work of the State and local boards of health; and as in all other affairs of life, the value of the lesson will stand generally in direct relation to the cost of it.

The person who receives the benefit of a sanitary improvement, should, if able to do so, pay a part, at least, of the cost, and should never be permitted to lose the sense of obligation on his part to prevent the spread to his neighbor of unsanitary conditions of his own making.

All the arguments that have been used for the existence of State health authorities are also available, it seems to me, for the creation and support of some organization for the protection of the public health in connection with the General Government. I think that the medical profession is agreed that no power less than that of the National Government will be sufficient to prevent the introduction of disease from abroad, or control its transportation from State to State.

There is, of course, a question as to what form the central authority should take, and how extensive should be its power.

"The well-being of the country," to use the language of the Constitution, should imply that we must know all that can be known about those diseases and causes of diseases which may affect the whole country.

Although the actual epidemic prevalence of disease of grave and frequently fatal character may be limited to certain districts, still the disturbance of commerce and the relations of life will extend to large sections of the whole country. Therefore, the National health authority should have the power and the means necessary for a thorough investigation of the communicable and epidemic diseases, and of the best means to prevent their spread. These investigations need not be limited to this country, in fact, it is quite evident that several of the most important diseases of this class must be also studied outside of the country, yellow fever for instance.

The General Government should also make available for use in all parts of the land, the information from foreign countries as to the prevalence there of contagious and epidemic diseases. Not simply such communications as may be made by consular officers, for these, as a whole, have probably no great scientific value, but that great mass of information which through one channel or another reaches Washington.

To this should be added the statistics of mortality and disease already published by our very many boards of health throughout the land, and not now readily available for use, except by difficult and tedious search through many documents accessible to but few.

In connection with this statistical work would naturally be associated some arrangement for the prompt receipt of information from all sections of the existence of dangerous communicable diseases, for the purpose of warning from a central office all interested communities.

A voluntary system of notification, established by the National Conference of State Boards of Health, has proved of much service, notwithstanding the fact that some of the great States have abstained from giving this information in a careful manner. But the usefulness of this method of communication has been seriously limited by the want of a central office, and the effective system for sending early advice in any required direction which the General Government alone could easily provide.

Not the least of the very many claims of the National Board of Health upon the medical profession was its attempt to secure uniform systems of registration of vital statistics, and a nosology adapted to the changed views now entertained as to the nature of many diseases. This work should be taken up again and carried on, if necessary, by liberal appropriations for the purpose of encouraging and assisting everywhere a continuous registration of vital statistics in a suitable manner.

Dr. Billings, the wise and experienced officer in charge of the "Mortality and Vital Statistics of the U. S. Census," says:

"But as the United States has no system of registration of vital statistics, such as is relied upon by all other civilized nations, for the purpose of ascertaining the actual movement of population, our census affords the only opportunity of obtaining even an approximate estimate of birth- and death-rates of a much larger part of the country, which is entirely unprovided with any satisfactory system of State and municipal registration; and the data which the census gives, imperfect as they are, are the only ones by which we can compare the healthfulness of this with that of other countries, or can ascertain, even approximately, the relative salubrity or liability to particular forms of disease of different parts of our own territory."

And again.

"Nothing pays better than good book-keeping in national affairs, and in no part of a nation's work is good book-keeping more useful than in keeping records of the life and health of the people."

The most troublesome point in the whole inquiry remains, How far should the general government enter into the management of quarantine?

Though I come from a State which has never asked the assistance of the authorities at Washington, during any pestilence within her own borders, and is not likely to do so in the future, and is at the same time fortunate enough not to have felt for three-quarters of a century the terrors of the pestilence that has wrought such havoc in other States; with all this I say, that it seems to me the duty of the whole country, through the national authorities, to assist those communities which are too weak to help themselves, and to undertake the health functions of local government for those too ignorant to know their remedies.

A satisfactory settlement of the question as to the powers to be bestowed on the national authority depends, it seems to me, very much upon the form of the organization. If that of a board should be selected, with an adequate representation of the separate States, then would there seem to be no serious objection to the bestowal upon this board of a direct control of quarantine. The points in dispute between the general government and the States would appear to be safe in the hands of a board of national authority and directly representative of the States.

It is quite probable that such a board might be somewhat cumbersome in form, and not altogether easy to control—which is far from being an unmixed evil; but there are many contrivances by which a large board can delegate its powers to an executive committee during the intervals between the general meetings of the full board —meetings which could not and should not, in the nature of things, be frequent. I can readily see, however, that this question of form is one for the lawmakers, rather than for our profession.

The only alternative seems to me to be a single officer at the head of a bureau, in connection with some one of the departments at Washington. An officer not charged with great executive powers, who shall have, if it is practicable, unlimited authority to investigate by himself or by competent experts, the questions which directly relate to public preventive medicine. He should be at the head of all the current medical statistical work of the government, with the exception of that of the public services. He should be in constant and harmonious relations with the scattered health authorities of the land, and should be permitted to coöperate with them in sanitary work. He should be subjected to the distractions of no other service; neither of the Army, nor of the Navy, nor of the Marine Hospital service.

The vast dimensions to which State medicine has already grown, the apparently unlimited fields upon which it has only just entered, make it evident that nothing less than all the thought and all the working hours of the best man are not too much to be devoted to the supervision alone of the investigations which ought to be made, not in one year of epidemic panic but through a series of years.

The only manifest advantage to this officer of a board of advice could, and would, almost of necessity, be afforded by some representation of the State Boards of Health, quite similar, perhaps, to that now existing in the National Conference of State Boards of Health. The need of easy and confidential intercourse with these intelligent, active, and responsible bodies would naturally suggest itself to the sagacity of any man who would be likely to hold this important office.

I believe that both the Department of Agriculture and the Bureau of Education have, from time to time, called to their aid, representatives of the agricultural and educational interests of the whole country.

Of the sanitary investigations carried on by the authorities at Washington, with the exception of those under the direction of the National Board of Health, it is not possible to speak with much satisfaction. Not that the scientific men in immediate charge of them were not entirely qualified for their work; it would have been very difficult to find men so competent as the great majority of them have been.

But it was very difficult, in a year of health in this country, to secure the necessary action authorizing investigations of diseases that might at any time enter our country; and there is every probability that it will be equally difficult to secure the means of continuing the work.

Dr. Shakespeare was sent abroad in the autumn of 1885, to make investigations of Asiatic cholera, then raging in Southern Europe. Beyond a few brief notices in the medical journals, one State Board of Health, at least, knows nothing through any official information from any department at Washington, of the results of the inquiry. As the Board of Health alluded to, is charged with the coördinate responsibility of watching the second largest port of entry in the Union, which has a more frequent communication with cholera-infected ports than any other except New York, the failure to impart valuable knowledge, at this important juncture, is inexcusable.

Again, in 1885, at the Washington meeting of the American Public Health Association, as well as at the meeting of the Conference of State Boards of Health, measures were taken for bringing to the attention of Congress some of the alleged facts in regard to the preventive inoculations of Drs. Freire and Carmona.

Congress was asked to appoint a committee of experts to Mexico and Brazil and ascertain the truths of the statements made. Notwithstanding the apparent willingness of the authorities to grant the petition, the inevitable delay attendant upon National legislation prevented action until the summer of 1887, when the appointment of a single expert was authorized. The president, with great promptness, appointed an expert of the highest qualifications—and Dr. Sternberg made a journey to Brazil and subsequently to Mexico. The year does not appear to have been so favorable for his purpose of studying the subject during the general prevalence of the disease as one of the preceding years would have been.

Nor under his rigidly drawn letter of instructions does he seem to have had the advantages that would have accrued to an investigation less controlled by precise orders.

Unfortunately, the evidence submitted by Drs. Carmona and Freire appears to have been entirely insufficient to justify the claims made by them of the discovery of the yellow-fever germ, nor has a prophylaxis of yellow fever, by means of their inoculations, been yet demonstrated.

It is a disappointment not to have reached the result that seems only just beyond our grasp. These claims, however, had been advanced so confidently by men holding honorable positions; inoculations had been practised on a scale so extensive that a formal investigation had become a necessity. Dr. Sternberg's work is worth all the money that has been spent upon it many times over. The way has been cleared for an exhaustive examination of this most virulent of imported pests, an inquiry that should have no limit of time, short of the discovery of a sufficient cause, and, if possible, of a preventive; even if an expenditure of money be required only less than the number of dollars that may measure the country's commercial losses, but would represent most inadequately the country's sufferings under this scourge.

It will be a satisfaction to all of us, I am sure, if Dr. Sternberg is enabled to carry to a successful conclusion the work so faithfully and intelligently prosecuted from the Havana investigation in 1879 to the present day.

But it must be regarded as a misfortune that scientific work of this sort should not be continuous and free from the irksome burden of limited time and meagre appropriations.

I approach the conclusion of this possibly wearisome repetition of commonplaces with much diffidence; for I wish to say a few words about the National Board of Health, still, by act of Congress, in legal existence; by

neglect of Congress in a state of hopeless lethargy. This Board entered upon its work with every promise of success; the members of it were of the best that our profession could offer, its contributions to public hygiene, both by the services of its members and by the work of its experts, have their due and honored place among the records of such work the world over.

It demonstrated for the first time in this country, I venture to say, that local, State, end National health authorities could profitably and harmoniously unite in suppressing an epidemic of yellow fever, and preventing its spread from State to State; and that under the influence of an impartially vigilant sanitary inspection and treatment travel and commerce need not materially suffer.

Yet all this has not saved it from practical extinction. Mistakes were probably made, but they are trivial as compared to the merits of the general work of the Board.

I feel forced, therefore, to the conclusion that its organic form, quite distinct from any body of such powers with which I am acquainted, and, unlike anything in our National government, must explain the failure to survive the unjustifiable attacks made upon it.

The presence upon the Board of representatives of the Army, Navy, and Marine Hospital Service, however conspicuous may have been the merits of their respective representatives, was not advantageous. They represented interests which ordinarily are of far less consequence than those of the cities of New York, Chicago, New Orleans, or San Francisco. Their rivalries, while perhaps not necessary, appear to have been persistent and mischievous.

It would not be possible, I think, to select seven men —that being the number of the appointed members of the board—who should adequately represent the various divisions of the country.

The States are not accustomed to a representation at the hands of other States; and the State not represented will find it difficult to understand the principle of selection.

The great States of Ohio and Pennsylvania have not been represented on the existing Board.

Is it well to wait until a new outbreak of yellow fever, or the landing of cholera, gives us legislation founded only on the weakness of fear?

I cannot but think that it is better to have the substance of things, whether it comes in the form of a Bureau of Health or Board of Health, provided only, that some part of the great resources of the Nation shall be turned to the protection of that property which is, at least, as valuable as the fabrics of a Massachusetts mill or the wool of Ohio's sheep; I mean the protection of that greatest property of all—human life.

ORIGINAL ARTICLES.

GALL-STONES OR SOAP? OLIVE OR COTTON-SEED OIL IN THE TREATMENT OF GALL-STONES.

BY D. W. PRENTISS, M.D.,
OF WASHINGTON, D. C.

QUITE a number of reports of cases have recently appeared in the medical journals, of the treatment of biliary colic by the use of large doses of olive oil, in which relief has been obtained, and in which are mentioned the appearance in the stools of numerous semi-solid, rounded masses of varying size. Some of the reporters have characterized these masses as gall-stones, while others, criticising this diagnosis, say they are concretions from the excess of oil taken, which latter is the correct position. The latest case is reported in the *Medical Record* of April 14, 1888, in which Dr. Thomas W. Street, U. S. N., says they are really gall-stones, for "when dried they exhibit facets."

All the cases heretofore reported have been in reference to the use of olive oil. Considering the fact that cotton-seed oil is so nearly identical in all its properties, I ordered it instead of olive oil in the case here reported; its effects also seemed to be identical.

I first made use of olive oil, eight or ten years ago, in the case of a man who had had repeated attacks of biliary colic, and had previously taken various remedies without relief. After taking twelve ounces of olive oil, he passed, as he thought, a large number of gall-stones, and his health immediately improved. He had no return of the attacks of colic as long as he continued under my observation, which was about two years.

In December, 1886, a case came under my care, of repeated attacks of violent pain in the region of the liver, followed by jaundice.

Mr. R., about forty years of age, Government clerk, with correct habits, an active, hard worker when well, but of spare habit. He became very much emaciated under these attacks, which recurred so frequently that he was continually jaundiced. I could discover no organic disease of the liver. He was under treatment from December, 1886, to June, 1887, by various remedies, among which were quinine, mercurials, terebinthinated ether, muriate of ammonium, and cod-liver oil. But he did not improve, and early in June he consented to take a pint of *cotton-seed* oil, and being a man of resolution, he drank the whole pint, keeping it down with difficulty.

I instructed him to look out for gall-stones, and the next morning his wife brought me triumphantly a number of semi-solid, greasy looking balls of varying sizes, from a pea to a hickory-nut. Mr. R. was greatly relieved, the jaundice shortly disappeared, and he continued well until December, 1887, when the attacks of colic and jaundice recurred. A pint of cotton-seed oil was again prescribed for him, and taken as before—this time, however, with more difficulty in swallowing and retaining it than the first time. The following morning he brought me a dozen or more of these greasy looking, semi-solid balls, taking great comfort in believing them to be gall-stones, and said he had passed a "pint of them." He was relieved, and, up to this date (April, 1888), has had no return of the disease.

I did not undeceive him as to the nature of the concretions, thinking his state of mental satisfaction over this extraordinary discharge of gall-stones could do no harm. Besides, I was not quite sure myself what they were, though believing them to be concretions of the oil taken. I placed them in a wide-mouthed bottle for further examination, and found, after a few days, that they had liquefied.

In talking over the subject with Prof. H. W. Wiley, Chemist of the Agricultural Department, he expressed doubt if the oil could be saponified in the intestines to the extent which the case seemed to indicate, and kindly offered to analyze the specimen. The specimen was sent to him, and I append his report as it was made to the Chemical Society of the District of Columbia. This analysis is of special interest, as it is, I believe, the only analysis of these concretions upon record.

Dr. Robert T. Edes, in his new text-book on *Materia Medica and Therapeutics*, 1887, p. 287, has the following expression: "Large doses (of olive oil), a pint per diem, have been prescribed for gall-stones, with the result of producing discharges of small, semi-solid masses resembling and sometimes mistaken for gall-stones. They are, however, really lumps of soap, formed by the oil with the alkalies of the intestinal secretions." The analysis of Prof. Wiley confirms the statement of Dr. Edes that these masses are true soap.

Prof. Wiley's "Note" is as follows: "The action of the gastric juice on fat seems to be confined to separating therefrom all connective and enclosing tissue, and thus setting the fat free. It is found in the stomach in large globules, and passes the pylorus unchanged. The pure intestinal juice seems to exert no action whatever on fats, and these substances are said by Busch to appear in the feces unchanged, when subjected to the action of the intestinal excretions alone.

"Flint says, that while the action of the pancreatic juice in emulsifying fat is undisputed, there is no evidence that in normal digestion there is ever any saponification. The fats found in the thoracic duct are always neutral, and do not contain any free fatty acid. On the other hand, Bernard has shown that the pancreatic juice outside of the body has a distinct power of saponifying fats. Landois and Sterling, however, recognize the saponifying power of the pancreatic juice in normal digestion, but attribute the result to a fat-splitting ferment called steapsin. The process of emulsification is said to go on with much greater rapidity when the fat in question contains a trace of free acid. The surface of each fat globule becomes coated with a thin film of soap, which is soon detached, carrying with it minute particles of fats. The repetition of this process secures finally a complete emulsification. Both the soap and emulsion are absorbed. The authors state further that soluble fat soaps represent only a fraction of the fats which are absorbed, the greater part of the neutral fats being absorbed in the form of an emulsion. Absorbed soaps, however, have been found in the chyle.

"Dr. Prentiss, of this city, administered to a patient a large dose (a pint) of cotton-seed oil. In the dejecta were found large numbers of moderately hard, ovoid bodies which the patient thought were gall-stones. They were brought to Dr. Prentiss, who preserved them in a stoppered bottle, and sent them to me for examination.

"On reaching me the whole had melted to a viscous mass resembling soft soap. On examination, it proved to be a true soap, easily soluble in alcohol, yielding fatty acids, insoluble in water on treatment with an acid. After saturation with hydrochloric acid, the chlorides of the alkalies were separated from the fatty acids by filtration, evaporated to dryness, ignited to low redness to drive off any ammonia and to destroy organic matter; the residual chlorides dissolved in water, filtered through a small filter, evaporated nearly to dryness, dissolved in alcohol, and treated with platinic chloride: a distinct precipitate of potassio-platinic chloride was formed. The chief part of the alkali, however, was soda. This is an interesting case, showing the complete saponification of a large quantity of oil by the pancreatic juice and bile, and the passage of the greater quantity of soap thereby formed, unabsorbed, through the alimentary canal.

"Since the favorable effect of alcohol in promoting saponification is so well established, the deportment of the patient in question in respect of the ethics of temperance would be a matter of interest."

A CASE OF CLUB-HAND.

BY JAMES K. YOUNG, M.D.,
ASSISTANT SURGEON TO THE ORTHOPEDIC DISPENSARY OF THE UNIVERSITY OF PENNSYLVANIA.

MY attention was recently called to a case of club-hand of traumatic origin, which presented some etiological features of interest.

The mother aged eighteen, primipara, illegitimate; father healthy, large-boned man. No history of nervous disease or deformity. The labor was very tedious, and forceps had to be applied at the superior strait. The pelvic measurements were probably justo-minor of very slight degree, about one-half an inch in every diameter. The extraction lasted about three hours, and was very difficult.

On delivery the head was found to measure fifteen inches in fronto-occipital circumference. On the forehead to the left of the frontal suture was an open wound, three-fourths of an inch long, through which projected a sharp spicula of bone. The fragment was replaced, the wound dressed antiseptically, and apparently healed; but about the second day there ap-

peared a large hematoma at the site of the wound and at the same time the following deformity was noted: The fingers and thumb of the right hand were flexed, the hand was markedly adducted, somewhat flexed at the wrist, forming almost a right angle with the radial side of the forearm, in the radio-palmar position. The muscles were firm on the radial aspect of the forearm.

The child died on the fifth day, and the deformity disappeared some twenty-four hours before its death. The hematoma was deeply incised under the impression that suppuration had occurred. This was, however, a mistaken idea, but a large quantity of blood escaped at the time, and was followed by a consecutive hemorrhage, so that the child was very anæmic up to its death. Some time after this hemorrhage the deformity disappeared, probably upon the removal of pressure. At the autopsy a T-shaped fracture ran to the left of the frontal suture, each arm extending five-eighths of an inch. The skin over it was beginning to slough, and in the dura mater immediately beneath the fracture was a dark, congested area of beginning slough. The brain was intensely congested, and there was a marked serous effusion, the cause of death.

This case, then, presents for study one of those rare deformities, club-hand, the cause of which was a lesion of the cerebrum received during extraction.

In man, records of destructive lesions of the motor areas, in the whole or part, of the cerebral cortex, have now accumulated to a sufficient extent to leave little doubt that if there be a destructive lesion of the middle third of the cortex of the ascending[1] frontal or ascending parietal convolution, there will be paralysis of the arm of the opposite side. The fracture of the skull was about in this position. But in this case the deformity was not one of paralysis, but of contraction of one group of muscles over another. Bovior,[2] in his excellent article, has placed these cases of club-hand under the second head, "contracture of certain groups or isolated muscles."

This contraction Gowers[3] has described as "initial rigidity," due to irritation, and that this was probably its nature is confirmed by its disappearance upon removal of the cause.

The interesting facts in the case are the occurrence of club-hand coincidently with hæmatoma, and its disappearance on the subsidence of the latter.

222 SOUTH SIXTEENTH STREET.

[1] Landois and Sterling, vol. ii. p. 976. Horsley and Beevor, Proc. Roy. Soc., 1886.

[2] Dict. Encycl. de Sc. Méd., Paris, 1871, p. 363.

[3] Diseases of the Nervous System, vol. ii. p. 75.

MEDICAL PROGRESS.

The Treatment of Pruritus Pudendi by Peppermint Water.—ROUTH has used peppermint water as a lotion in pruritus at Charing Cross Hospital, and describes his mode of use and results as follows:

The B. P. preparation of aq. menth. pip. answers well, but is bulky for carrying about, and is incapable of concentration unless rendered alkaline. This is best done by borax, as being in itself soothing and antiseptic. Patients can easily make their own lotion, as required for use, by putting a teaspoonful of borax into a pint bottle of hot water, and adding to it five drops of ol. menth. pip., and shaking well, the parts affected to be freely bathed with a soft sponge.

If no cracks or sores are present, this lotion will remove the itching, but if there be eczema, etc., or rawness from scratching, it is inapplicable, olive oil, with five grains of iodoform to the ounce, being then more useful. The greatest and most permanent relief is afforded in the neurosal form, especially in the reflex pruritus which often accompanies pregnancy, and which then may take the place of reflex sickness or vomiting. It is also very useful in the pruritus which occurs in the climacteric, or in elderly women, in whom it may be only part of a general pruritus, and also in those cases of women of all ages, where the urine simultaneously becomes of very low specific gravity, without any evidence of having a gouty or granular kidney as a remote cause.

In pruritus due to pediculi, ascarides, an irritable urethral caruncle, an endocervical polypus, early cancer of the cervix, distention of Bartholini's ducts or glands, the leucorrhœa of vaginitis, endocervicitis, and metritis, or the irritating discharges of advanced carcinoma uteri, or to a gouty or diabetic diathesis, the drug excels all others, cocaine inclusive, in affording relief, whilst endeavors are being made to remove the cause.

In two obstinate cases of uncontrollable pruritus of pregnancy, where this remedy gave only temporary relief, the patients were cured by applying iodine liniment to the angry-looking cervix uteri, which method has been used successfully by Dr. John Phillips and others for the similarly severe vomiting of pregnancy.—*British Medical Journal*, April 14, 1888.

The Transplantation of Mucous Membrane.—At the recent Congress of German Surgeons, WÖLFLER, of Gratz, spoke of the value of transplantations of mucous membrane. He said that where cicatrices are produced in cylindrical organs of the body, which are lined with mucous membrane, an operation could only be useful if it were possible, after excision of the scar, to unite the mucosa. But that is impossible in many cases. Therefore he had employed the method of Thiersch (the transplantation of portions of epidermis) with great success. After having excised the thickened and indurated tissue from impermeable urethral strictures, he transplanted mucous membrane from a prolapsed uterus. The operation was completely successful. In the same manner he transplanted mucous membrane from a prolapsed rectum on to the conjunctiva in a case of blepharoplasty. He succeeded even in transplanting mucous membrane from frogs, pigeons, and rabbits with good results.—*British Medical Journal*, April 14, 1888.

Strophanthus as an Antipyretic.—DR. A. ROVIGHI, of Bologna, in experimenting on the effect of tincture of strophanthus (prepared according to Professor Fraser's directions) in cases of cardiac disease, came to the con-

clusion that it was much inferior to digitalis and caffeine in its power of regulating disordered action of the heart, relieving dyspnœa, and increasing the excretion of urine. He was, however, struck by the way in which it seemed to lower the temperature; and he, therefore, tried it in various febrile affections with very satisfactory results. Thus in four cases of pulmonary phthisis, in which for months there had been considerable pyrexia, and in which other antipyretic remedies were useless or were badly borne by the patient, tincture of strophanthus in doses of from four to six minims every six hours reduced the temperature by two or three degrees. In a lad suffering from tubercular disease of the intestine with peritonitis, with a temperature of 104° F., three minims of the strophanthus tincture every six hours brought the temperature down to 98.5° F. in the course of twelve hours, and as long as the remedy was continued the temperature never rose beyond 99° F. In a patient with tubercular disease of the left hip, a pyrexial temperature of 103.5° F. fell to 98° after the administration of fifteen minims (five every six hours) of tincture of strophanthus. In a case of typhoid fever in the second week four to six drops every six hours lowered the temperature by two degrees. In all these cases the drug eased headache, lessened the quickness of the pulse, and produced a feeling of comfort in the patient, and did not in any instance give rise to symptoms of collapse, nor to disturbance of the gastro-intestinal canal, nor profuse sweating. Dr. Rovighi states that these clinical observations were confirmed by experiments on rabbits, in which tincture of strophanthus in doses of ten or twelve minims lowered both the general and the local temperature to a very marked degree. On the other hand, Dr. V. Martini, of the University of Siena, has (*Sul Valore Antipiretico della Strofanto*, Siena, 1888) tested the alleged antipyretic properties of strophanthus with absolutely negative results. He used a tincture prepared by Merck, of Darmstadt, of the same degree of concentration as Fraser's, and also one made by Messrs. Burroughs, Welcome & Co., according to Professor Fraser's latest formula. He tried it in cases of phthisis, tubercular peritonitis, broncho-pneumonia, acute rheumatism, erysipelas of the face, acute purulent cystitis, and hysterical pyrexia. From ten to fifty drops were given daily in three, four, or more doses at regular intervals. The thermometric readings were carefully noted every three hours for three or four days before and after each experiment, as well as during the course of it; in some cases the temperature was taken every hour whilst the drug was being administered. In the majority of cases no effect whatever on the temperature was observed; in a very few instances there was a slight fall, extending only to some fractions of a degree, which was followed almost immediately by a return to the former level. Dr. Martini concludes that strophanthus has not the slightest value as an antipyretic.—*British Medical Journal*, April 7, 1888.

Antipyrin in Diabetes.—At a recent meeting of the Therapeutical Society of Paris, Dujardin-Beaumetz reported that he had given antipyrin in doses of from 8 to 30 grains to three diabetic patients, and had observed a diminution in the quantity of urine passed, the quantity decreasing from five or six quarts to two or three quarts in twenty-four hours. The quantity of glucose passed was now lessened.

Féréal had begun the treatment of a case of diabetes with antipyrin in doses of 25 grains daily; the treatment was interrupted by loss of appetite and vomiting, on giving antipyrin.

Paul had overcome the tendency to nausea by giving bicarbonate of soda with antipyrin.—*Gazette Hebdomadaire*, April 6, 1888.

Iodine in Malarial Cachexia.—Miraschi, of Salonica, prescribes as follows for severe malarial cachexia:

Tinct. iodin. comp.	12 gtt.
Tinct. nucis vom.	10 gtt.
Aquæ,	
Glycerin.	āā 1½ ℥.

To be taken in three doses, half an hour before meals.—*Revue Gén. de Clin. et de Thérapeutique*, April 5, 1888.

Extirpation of the Larynx in Italy. — Cacciopoli, of Naples, is reported by the *Journal of Laryngology* for April, 1888, as having performed the following operation:

A woman, fifty-two years old, was operated upon December 14, 1887, for a large tumor (soft sarcoma) of the thyroid gland, which interfered with the breathing, and the weight of which (as stated after the extirpation) was about two pounds. Three weeks later there was a recurrence, which was treated with Volkmann's spoon and cauterization. A later recurrence necessitated a third very difficult operation, during which the Professor was able easily to convince himself that the tumor was adherent to the thyroid and cricoid cartilages and the first rings of the trachea. On February 7th a new tumor was found, involving the right half of the thyroid cartilage. Laryngectomy was decided upon, and performed on February 19th. The abstractor, who had the honor of being present, was very happy to congratulate the operator. Up till now everything has progressed satisfactorily. The larynx and the first six rings of the trachea were extirpated, and it is to be hoped that the thirteenth laryngectomy practised by Italian surgeons may be crowned with complete and satisfactory success.

Papoid Digestion.—Ruttan, of McGill University, in the *Medical Herald* for April, 1888, reports his conclusions from experiments with papoid, as follows:

Papoid is especially useful for removal of diphtheritic membrane. The conditions present in the pharynx are just those which retard the action of pepsin and pancreatin, but do not influence papoid. The medium in which it is required to act is practically a neutral one and the temperature low; there is present, besides, a large excess of the products of digestion which does not affect papoid—indeed, it is most energetic in a concentrated medium. Moreover, papoid has been shown clinically to lessen very greatly the disagreeable fetor of the disease. Painting on a five per cent. solution, freshly made, every two or three hours, has been found to give the best results: the fetor disappears in a few hours and the membrane in from twelve to eighteen hours becomes thin and glairy.

It would seem to be especially indicated in those forms of dyspepsia in which peptic digestion is greatly impaired and in which the secretion of gastric juice is very weak.

Papoid, therefore, promises to be a powerful auxiliary in combating those two great diseases—diphtheria and dyspepsia.

Chlorate of Calcium in Eczema.—LIER, in the *Monatshefte für Praktische Dermatologie*, No. 8, 1888, gives the following formula for the use of chlorate of calcium in eczema:

Ung. zinc.		20 parts.
Talci,		
Ol. cadin.	āā	5 "
Aq. dest.		10 "
Calcii chlorat.		2 "

This paste has been found especially useful in chronic, obstinate eczema.

Acetic Acid and Ergot as Ecbolics.—MAHOMED, in the *British Medical Journal* of April 7, 1888, writes as follows on this subject:

Since Dr. Grigg called attention to the value of vinegar as an ecbolic, I have frequently used it for that purpose. And I have also found that four drops of the strong acetic acid (representing nearly half a drachm of vinegar) combined with strychnine have been successful in bringing about contractions of the uterus after ergot had failed. In one noteworthy case where in a very weak and anæmic woman the pains, after continuing feebly for a day or two, seemed to be leaving her, and ergot had been exhibited (the waters having broken), I found acetic acid and strychnine produce sharp and effectual pains.

The same thought, therefore, occurred to me as to Dr. Francis, of the possibly good results of combining it with ergot, and, in addition, observing that acetic acid could extract the active principle from colchicum and ipecacuanha, I asked Messrs. Corbyn to make a preparation of ergot, using acetic acid as a menstruum, with a standard surplus of free acid. In a short time I received from them two samples, one of ergot extracted by acetic acid, of which a fluidrachm represented sixty grains of ergot with ten minims of free acid; the other an alcoholic extract of ergot, which also represented sixty grains of ergot and ten minims of free acid to each drachm.

Both preparations had the color of the ordinary extracts, but the acetic acid frothed when shaken, which, of course, the alcoholic extract did not do. The acetic acid process should be more economical than the spirit method.

In a case where there was retained discharge after labor I gave some of this extract, and when the medicine was exhausted wrote a prescription for a similar dose of *B. P.* extract, to which I also added some bromide of potassium, which is stated to aid the involution of the womb. The case was still unrelieved on my next visit, the uterus being obviously distended, so, after syringing out the cavity, I told them to have the medicine made up again, when the patient said, "Oh, sir, the medicine you gave me at first brought away something every time, but this medicine has done no good." This seems like a comparative test in favor of the acetic extract.

In a case of flooding, due to a large fibroid, I found that twenty minims injected deeply into the buttock gave rise to no local irritation, and there was no bleeding the night following, but there needs further experience before attributing this result to the drug. Ergotine disks did not always control it.

Corrosive Sublimate for Hardening the Brain for Anatomical Study.—DIONRIDOFF, of St. Petersburg, has employed a 7 per cent. solution of corrosive sublimate to harden the tissues of the brain and nervous system. Small pieces of tissue were placed in this solution from seven to nine days, after which they were put in alcohol, 50, 70, and 96 per cent., for twenty-four hours. This method of hardening preserves the contour of the cells; the tissue so hardened cuts and stains well, and is easily preserved.—*Fortschritte der Medicin*, April 15, 1888.

The best Solvent for Corrosive Sublimate.—GARRÉ is quoted by the *Fortschritte der Medicin* of April 15, 1888, in reporting his experiments on permanent solutions of corrosive sublimate. He found acetic acid the best adjuvant for dissolving corrosive sublimate, as follows:

Acid. acetic. concen.	♏ 8.
Hydrarg. bichlor. corros.	gr. 15.
Aquæ font.	1 quart.

The Actual Cautery in Epilepsy.—At a recent meeting of the Société des Hôpitaux of Paris, M. FÉRÉ presented a patient who, six months after an attack of hemiplegia, was seized with epilepsy, the attacks recurring every fortnight. The actual cautery was applied to the side of the head supposed to correspond to the cerebral lesion, and the result was that in the space of one year the patient had only three attacks, and it is now five months since the last one. M. Féré treated seven other patients under similar conditions, and the amelioration obtained was very satisfactory.—*Medical Press*, April 11, 1888.

The Prognosis of Extirpation of the Larynx.—MAYDL, of Vienna, relates that in one of his cases which had been free from recurrence for twenty-five months, this afterward occurred, and he, therefore, believes that a case cannot be considered to be definitely cured until three years after operation, merely because recurrence has not been observed within this time. Of sixty-five cases operated on, thirty died in a short time after operation, twenty died within nine months after operation from recurrence. Eight cases were at this time without recurrence, but in only two cases could it be said that a definite cure had been effected (thirty-four months and four years after operation).—*Journal of Laryngology*, April, 1888.

A Hypnotic for Use in Alcoholism.—MANN, of Brooklyn, in reporting good results in the treatment of alcoholism, states that he found the following a useful hypnotic. At night two tablespoonfuls were given:

℞.—Tr. opii deod.,		
Ext. hyoscy. fld.	āā	℥j.
Chloral hydrat.,		
Pot. bromid.	āā	℥j.
Tr. capsici		℥ss.
Tr. aconit. rad.		♏v.
Aq. menth. pip.	q. s. ad.	fl. ℥iv.—M.

—*Brooklyn Medical Journal*, April, 1888.

The Medical News.

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OF MEDICAL SCIENCE.

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SATURDAY, MAY 12, 1888.

THE CINCINNATI MEETING.

CINCINNATI, May 10, 1888 (*By Telegraph*).—The meeting of the American Medical Association this year has proved a notable success. The attendance was large, and represented every section of the country. Near the centre of population, Cincinnati, by the convergence of many railroads, is a focal point for travel, but this does not wholly account for the presence of the unusual number of men of mark, particularly from the cities of the Atlantic states. The differences growing out of the organization of the International Medical Congress appear to have ceased with the occasion that gave them birth. In this respect private advices amply confirm the impression received from the public addresses. The assiduity of a few mischief-makers has not availed to stem the current that sweeps the Association into its ancient course of national good feeling. This consummation is of no small importance to the future welfare of the Association.

The past has shown that the most certain and not the least valuable function of the Association is to bring into community of sentiment men of widely separated areas, who have common needs for State legislation. The appeal in the President's address for burial of recent contentions was warmly applauded. His main topic was medical education. In spite of the fact that the subject has been thrice beaten by the flail, he managed to separate some grains of value from a study of the statistics of the Bureau of Education. Acknowledging that all attempts of the Association to regulate the medical colleges have so far proven conspicuously futile, he still hoped that there are means not yet exhausted. His proposition is that by combined action of committees of legislation, every State could be induced to make laws requiring of the colleges the highest standard under penalty of revocation of their charters. Anyone at all familiar with the ways of thought of the average politician sees at once that this proposition must remain a dream. Dreams have their uses in the way of suggestion, and however unpractical the reform proposed, the feeling of discontent with the present methods spreads, and a needed impulse is given in the right direction.

In his Address in General Medicine, Dr. Bartholow presented some new facts to support the view that the best, if not the only, reliable basis for scientific therapeutics is the knowledge of the action of drugs on the tissues and organs. This basis is to be acquired largely by inferences from physiological experiments. As a clear and cogent statement it merited the warm approval, which was by common assent, accorded to it.

Dr. W. W. Dawson, of Cincinnati, was elected President, and after a spirited contest, Newport was chosen as the place for the next meeting. In selecting Newport, the Committee very properly recognized the claims of a State and of a city which has never before had the honor of entertaining the Association. Notwithstanding this valid reason the invitation of Philadelphia came within a few votes of being accepted.

CONTACT-LENSES.

IN the *Archiv für Augenheilkunde*, xviii. p. 283, DR. EUGEN FICK, of Zurich, describes his attempts to correct irregular astigmatism by the use of a glass shell inserted like a watch crystal or an artificial eye, immediately in front of the affected cornea. The intervening space being filled with fluid, the irregularities of the corneal surface are practically wholly substituted by the regular curve of the "contact-glass," with the result of raising the vision in one case from $\frac{1}{30}$ to $\frac{1}{6}$ of the normal. His experiments

were begun with puppies; and after finding that clouding of the intervening fluid, with roughening of the corneal epithelium and injection of the conjunctiva, followed the wearing of the glass for several hours, he reached the result that, by use of a sterilized two per cent. solution of grape sugar, this was obviated, and the glass could be worn without irritation for eight or ten hours. Six patients of Prof. Haab's Polyclinic were then tried, with the notable result above given in one case—the others showing little improvement of value. As the number of suitable cases is naturally limited, he commends the method to others who may have opportunity of employing it, without waiting till he himself shall have wider demonstration of its utility.

As the glass is practically invisible, moves freely with the eye, and is free from the limitation of the field of clear vision, which is such a drawback in the wearing of ordinary spectacles, especially when strong, the method gives promise of real usefulness, not only in cases not otherwise corrigible, but even in conical cornea and other extreme errors of refraction where good central vision is obtainable in the usual way. Any desired curve may be given to the new cornea, so as to correct a regular as well as the irregular ametropia. Protective glasses might be required to make the patient feel safe from accident by splitting of the delicate shell, although hardly more fragile than an ordinary artificial eye. The method was experimented with by Young, in the early part of the century, but Fick none the less deserves credit for its clinical application.

THE Committee of Arrangements of the Congress of American Physicians and Surgeons makes the preliminary announcement that this Association will hold its first triennial session in the city of Washington, during the 18th, 19th, and 20th of September next. The meetings of the Congress will be held in the evenings, beginning at 8 P. M., and those of the societies composing the Congress will be held during the daytime, according to the programme each may respectively provide. The sessions will be open to the profession.

The Local Committee of Arrangements of the Congress has secured places of meeting for the Congress and each society in close proximity, so that the members of the respective societies can interchange attendance at pleasure, without inconvenience.

It is the intention of the Executive Committee of the Congress to print the programmes of all the societies by August 15th.

The Committee of Arrangements is composed of one member of each society represented in the Congress, and its Chairman is Dr. S. C. Busey, of Washington.

THE Georgia Medical Association recently held, at Rome, its annual session. The following officers were elected for the ensuing year:

President.—Dr. J. S. Todd, of Atlanta.

Vice-Presidents.—Dr. J. B. S. Holmes, of Rome; Dr. E. R. Anthony, of Griffin.

Secretary.—Dr. K. P. Moore, of Macon.

The next meeting will be held at Macon, on the third Wednesday in April.

AT the last meeting of the College of Physicians of Philadelphia, a handsome gavel, consisting of the bust of Hippocrates, admirably carved, was presented to the College, with a note from Dr. A. Jacobi, President of the Academy of Medicine, of New York.

On the gavel was a silver plate with the inscription, "Presented to the College of Physicians of Philadelphia by the New York Academy of Medicine."

It is always pleasant to record such fraternal courtesies between distinguished bodies.

AGAIN has smallpox stolen past the quarantine at New York harbor, and made its appearance in Brooklyn. The case, or cases, came from Aspinwall, on the steamer "Newport," arriving April 12th, with eleven steerage passengers, and also the ship's surgeon, down with the disease. On the 16th, it is asserted, the Health Officer permitted fifty cabin passengers to "come up," and among these was a child of sixteen months, who, with her mother, was taken to Brooklyn. The child had been vaccinated at quarantine, but it nevertheless developed the disease, and was discovered by the medical inspector on the 26th. It is now known that the "Newport" had one or more cases of smallpox on board on her last southerly trip.

AT the commencement of the University of Pennsylvania, held last week, the degree of M.D. was conferred upon 114 graduates. The class presented to the institution a portrait of Dr. R A. F. Penrose, who has just resigned the Chair of Obstetrics, after

a service of twenty-five years. The Trustees, last Tuesday, elected to fill the vacancy created by this resignation, Drs. Barton Cooke Hirst and Howard A. Kelley, as Associate Professors of Obstetrics and the Diseases of Women. Both appointees are well equipped for their work, and their selection gives general satisfaction, and it is believed will tend to maintain the high reputation of the Chair of James, Dewees, and Hodge, with which are associated many of the brightest traditions of obstetric teaching in America.

Dr. C. D. Palmer, Professor of Obstetrics in the Medical College of Ohio, was thrown from his carriage by an ungovernable horse, and severely, it is feared fatally, injured, last Sunday in Cincinnati. Fracture of the skull and cerebral laceration are feared.

The meagre authentic information given to the public as to the condition of the Emperor of Germany, indicates that the disease is making steady progress, notwithstanding the temporary improvement which follows the occasional exacerbations. Our contemporary, the *British Medical Journal*, in its issue of April 28th, states, on the authority of a special telegram from Charlottenberg, that it will be understood that the reported improvement in the condition of the Emperor refers only to the incidental complications which have recently arisen, and not to the essential disease, which appears to make steady progress, though with alternations of quiescence and activity which have already on several occasions given rise to delusive hopes, followed by paroxysms of somewhat exaggerated alarm. It further states that "from information we have received from a trustworthy source we have reason to believe that a false passage was made in replacing the tracheotomy tube, as this operation was followed by considerable hemorrhage; but it can, we are informed, be clearly proved that neither of the Emperor's English medical attendants is responsible for this unfortunate occurrence."

The same journal's Berlin correspondent writes that "the *Kölnische Zeitung* recently stated that Mr. Hovell had irritated the wound in attempting to replace the tube. Mr. Hovell has written to that journal flatly denying this. He asserts that there was no bleeding till Professor von Bergmann vainly tried to introduce the new canula—an operation which had finally to be performed by his assistant, Dr. Bramann. As Dr. von Bergmann has not contradicted this statement, it may be accepted as true. Immediately after the introduction of the new tube the Emperor's temperature became raised, and there was a purulent discharge from the wound. For two days it was feared that pyæmia would set in. Professors Leyden and Senator, who were called in, agreed that the lungs were not affected. Since then no authentic news has been published. The official bulletins tell little or nothing of any real importance. The fever is believed to be due to some accumulation of pus in the neighborhood of the trachea. One thing is unfortunately too clear, namely, that the illness is rapidly tending to a fatal issue."

A prize of $500 from the Elizabeth Thompson Science Fund of Boston, has been awarded to Professor Rosenthal, Professor of Physiology at Erlangen, for "Investigations upon Animal Heat in Healthy and Diseased Organisms."

The initial article in this month's *Scribner* is an interesting story of pilot life and sighting a wreck, by Dr. W. P. Northrup, which shows that its talented author is as much at home in seafaring life and the use of nautical terms as in the pathological laboratory or the demonstration of O'Dwyer's intubation tubes. "In the Steamers' Track" is a well-told tale, amply meriting the leading place it occupies.

Dr. Edward Swift Dunster, for fifteen years Professor of Obstetrics and Diseases of Women and Children in the University of Michigan, died on the evening of May 3d, of pneumonia. He was born in Maine in 1834, and received his education in the arts at Harvard, and graduated in medicine at the University of the City of New York, in 1859. In 1861 he entered the regular army and served as a surgeon in the Army of the Potomac, and subsequently became medical inspector. He resigned in 1866 and recommenced the practice of his profession in New York. From 1866 to 1871 he was the editor of the *New York Medical Journal*. He was Professor of Obstetrics in the University of Vermont from 1868 to 1871, and in the Long Island Medical College from 1869 to 1875. In 1873 he was appointed to the same chair in the University of Michigan, and he removed to Ann Arbor, where he soon acquired a large practice. He was deeply interested in the subject of medical education, and did much to shape the present course at the University of Michigan.

SOCIETY PROCEEDINGS.

AMERICAN MEDICAL ASSOCIATION.

Thirty-ninth Annual Meeting, held at Cincinnati, May 8, 9, 10, and 11, 1888.

(Specially reported for THE MEDICAL NEWS.)

(*By Telegraph.*)

TUESDAY, MAY 8TH.—FIRST DAY.

THE Thirty-ninth Annual Meeting of the American Medical Association assembled amid clouds and rain at 11 o'clock in the Music Hall. The war of the elements was not sufficient, however, to prevent the assembling of about fifteen hundred members and spectators. On the platform were the officers, newspaper representatives, and others.

At the hour named the assembly was called to order by Dr. W. W. Dawson, Chairman of the Committee of Arrangements; and the meeting was opened with prayer by Rev. Robert Gibson, D.D.

The President, DR. A. Y. P. GARNETT, of Washington, took the Chair.

Vice-Presidents Duncan Eve, of Tennessee; Darwin Calvin, of New York; C. J. Otagan, of North Carolina; and A. Stedman, of Colorado, were called to the platform.

AN ADDRESS OF WELCOME

was made by the Hon. Amos Smith, of Cincinnati. He said: "There are sometimes events that come upon us where one man is appointed to set forth all that which may be wished by an entire people; but it has befallen me, as Chief Executive of the City you have honored with your presence to-day, to endeavor to speak for its citizens a welcome that they feel that you are deserving of, and if words do not suffice from my tongue to-day to make you feel that you have been most heartily welcomed, then may I say that I do not fear that within the coming days of stay among us the actions of our fellow-citizens will be such that you will not leave the gates of Cincinnati without feeling that you have been most hospitably received, and judging by the hospitality with which you have been received will know that the welcome must have been most cordial. Such action as was taken by the Mayor of this City when your Association met here twenty-one years ago is now not necessary. It is related that the police were instructed that if they heard laughing or perhaps a little noise upon the streets, it was only those rollicking doctors, and they were not to disturb them. I can assure you that you will not be disturbed in your enjoyment, and I bid you a hearty welcome."

DR. C. G. COMEGYS then welcomed the Association on behalf of the profession of Cincinnati. He said—"Mr. President and Gentlemen of the American Medical Association: On the part of the medical profession of this city, I am happy to welcome you to Cincinnati, and to assure you that we, all the citizens, feel greatly honored that you have selected this, the most central city of the Nation, for the Annual Congress. Twice before—in 1850 and in 1867—the Association has held its annual councils here, and your professional brethren and the people cordially united to make those occasions encouraging and profitable. It is sad to feel that the majority of those who then assembled and those who greeted you, have passed away. But it is evident from the numbers, freshness, and manly vigor seen on every side that their genius and spirit still live, yea, are augmented and fully competent to carry forward the great purpose of your predecessors. These large assemblies of medical men in increasing members, prove indubitably that the value of the Association is no longer questioned, to say nothing of the scientific dimensions involved. It is clear that the meetings of the Association give satisfaction to all. It is certainly a great pleasure for men who are engaged in common duties and modes of life, in widely separated areas, to be thus brought together for the establishment of acquaintanceship and friendship that promote community of action for a higher performance of their beneficent work among the people.

"It is a wonderful sight to behold so large a body of cultured men who are striving, always and everywhere, to enlarge public happiness by investigations for the prevention of those causes and agencies that undermine public health and welfare, when if complete success should crown their lofty aims, the remunerative part of their labors would be extinguished. The medical profession is unceasing in its labors to trace devastating epidemics to their lair, to avert the march of infectious diseases, to isolate those who are suffering therewith, to disinfect localities, to point out the most healthful modes of living in regard to light and sun, purity and abundance of water supply, the evil of adulterated food, the overtaxing of labor, the prevention of ill-assorted and consanguineous marriages, and abuses of the brain, and suppression of those two giant evils of civilization, intemperance and prostitution.

"This period of your assembly is one of extraordinary interest to our people, for this is the centennial year of the settlement of Cincinnati. It is an heroic age and a glorious race which we seek to commemorate. One hundred years ago a body of adventurous men with their families descended the beautiful Ohio, on rudely constructed barges and landed on this shore.

"It seemed to be a stupendous undertaking then to plant themselves in the primæval forest on this wild coast with no means of immediate sustentation but the stores in their barges and what they might hunt in the wilderness.

"But they were men of no common mould. They brought with them courage, culture, and integrity, and were full of the high aims of the eastern people who had first conquered their independence and secured the vast British possession south of the Canada line. They were imbued with the loftiest motives that can animate the soul, and fearing nothing but God, they confronted the wilderness and its warlike denizens with that dauntless courage which renders individuals and communities where their cause is just unconquerable. There was no lack of cultivated people; indeed, in the pulpit and at the bar and in medicine there were men possessed of acknowledged ability and collegiate training, and several of them had a national reputation; but there was no master mind who, as a leader, could bring into combined action all the needs and desires of a growing and refined community, for the establishment of institutions for instructions in higher learning.

"In the meanwhile, however, there was growing to manhood, in the wilds of Kentucky, one whose sons had

caught the spirit of the times and who at length came to Cincinnati with the largest desire to take part in her future welfare. Such a mind, so full of enthusiasm for knowledge in Nature's arcana, could not remain in the dull routine life of the planter. It was happily directed toward medicine, and Daniel Drake came to this city in the first year of the century and apprenticed himself to Dr. Goforth as his office boy, student, and apothecary. His opportunity for formal instruction in books had been very limited, but the lack of opportunity was greatly compensated by his habits so thoroughly acquired of observation, comparison, and meditation. After a patient and methodic service of six years in which he had made himself familiar with the best books, he felt he must go to the famous school where Rush, Physick, and Wistar taught. With scanty means he completed his long journey on horseback and gratified the wish of his heart. On his return with enlarged views of culture, he entered busily into practice and rose rapidly in public estimation. Besides medicine, he investigated at large, subjects in natural history and physics, and also studied the aborigines and the monuments that marked their residence in our valleys. He wrote also descriptions of the rising city, the Miami valleys, and their prospective wealth. These writings, particularly the scientific ones, attracted wide attention, so that when, at a later period, he returned to Philadelphia to attain his degree, he was received by the faculty of the University and the distinguished society of Philadelphia as a savant.

"To the south of them, in Kentucky, lay another flourishing frontier town of nearly equal population with Cincinnati. It was not only distinguished for the heroic patriotism of its people, but also for their high social culture and the organization of the Transylvania University. Lexington first held aloft the torch of science in this wild world, and was recognized as the Athens of the West. There, under the auspices of Professor Dudley, in 1817, the first medical school of the West was organized, and Drake was elected one of its professors. Dudley and Drake were of the same age, and both Kentuckians. They first met as students in Philadelphia. Dudley graduated in that year, 1806, and four years later went to France, joined the French army as a junior surgeon, and served on Larrey's staff in many battles ending, I believe, at Waterloo. Drake was a voluminous writer on professional and general topics, but his greatest work was his systematic treatise of the diseases of the interior valley of North America, to which he devoted more than twenty years of travel throughout the vast Mississippi valley. Though Drake has long been dead, yet all his great undertakings remain and are flourishing."

Referring to the present of Cincinnati, Dr. Comegys said: "The medical college of Ohio, now a medical department of the University of Cincinnati, was never more prosperous; the clinical and pathological school of the hospital is attended by 400 students. It has a large and growing library and museum.

"Drake's great example and his precepts have continued to affect medical life in Cincinnati. I think it my duty to say to the members of the American Medical Association that a spirit of original research has ever been carried forward here; and in a period of forty years of professional life in this city I have never known so many young men of thorough training as in our own schools, and supplemented by severe study in the clinical schools of Great Britain and the Continent, as are now among our active practitioners.

"A few last words about our city at large. We hope that you will take a general view of its poetical situation. It is peculiar and striking. If you ascend our hills you will find that they are built of those stratified sedimentary masses that belong to the lower Silurian epoch. Between all of these layers quantities of marine shells are found, that prove that they formed the bottom of a great salt sea."

Dr. Garnett then delivered

THE PRESIDENT'S ADDRESS.

He chose as his subject the mission of the American Medical Association; its paternal relation to the entire profession of the United States imposes upon it duties and responsibilities of the gravest character. He said: "Taking a retrospective view through nearly half a century of existence we have no reason to be discouraged. But while we feel gratified by contemplation of the fruits of our labors in the past, it is obviously important that we should not be flattered into a belief that we have accomplished our mission, and permit ourselves to lapse into supine indifference with regard to a preëminently important object which remains to be worked out, through the instrumentality of this Association. I refer, gentlemen, to radical and thorough reform in the present system of medical education in the United States." The present faulty methods of education were then reviewed in connection with statistical tables of methods of instruction and requirements for admission into the various institutions of our country. He then submitted the following propositions:

"*Proposition first.* That a standing committee, to be called the Committee on Legislation, shall be appointed for each State and Territory, and the District of Columbia, to consist of five members of the medical profession in good standing, three of whom shall have no official connection with any medical school or college, whose duty it shall be to carry out, as far as possible, the following instructions:

"*a.* Each one of said committee, or a majority thereof, shall attend the sessions of their respective Legislature from time to time, as their duties may require, for the purpose of using all honorable means looking to the reduction of medical schools in the United States, and the consequent diminution of the annual number of graduates; that, as a practical measure to this end, they urge the passage of a law requiring that in the future granting of charters for creating medical schools there shall be a clause in every such charter requiring that all schools or colleges thus created shall demand a full term of four years' study before granting a diploma thereof, and that no student shall be admitted to matriculate who has not passed satisfactory examination, oral and written, in the ordinary branches of academic study; and further, that any college failing to show a greater number than fifty matriculates annually for three consecutive years shall forfeit its charter and be abolished.

"*b.* That they use all diligent efforts to secure an ordinance creating in each State or Territory, where no such board at present exists, and in the District of Columbia, a board of medical examiners which shall have no connection with any medical school, and which shall be required to examine all applicants for license to practise

medicine in the States, Territories, and the District; and that any person who may be detected practising any branch of the healing art without a license granted by the said board, shall be subject to such penalties as the law may provide.

"That this committee may be authorized by statute to select and nominate to the Governors of the States, Territories, and the District of Columbia, seven competent, learned members of the medical profession, to constitute such a board of examiners, who shall have exclusive power to issue licenses to practise the art and science of medicine and surgery.

"*c*. That the Chairman of the said committee of five be required to submit at each annual meeting of the Association a report embracing a full statement of what has been accomplished by each.

"*Proposition second*. That the faculties of the several medical schools within the limits of the United States be once more urgently requested to call a convention at some central point for the purpose of consultation and adopting some general and uniform system of medical education, more comprehensive and rigid in its requirements, and more in accord with the spirit of the age and advanced progress of medical science, suggesting four years term of study, the requirements of a preliminary education including some knowledge of the classics. That any college or school which shall refuse to enter into such arrangement as may be decided upon by the said convention, shall be excluded from all connection with the American Medical Association, and its Alumni shall not be recognized as members of the regular profession."

He urged the adoption of more active steps toward the erection of the Rush Monument, as proposed at a former meeting. "We owe it to ourselves," he said, "to recognize the fact that in honoring the memory of such a representative of the medical profession we do honor to ourselves." He concluded by congratulating the Association upon the proud and enduring position occupied. "Resting as it does upon solid foundation, a moral, intellectual, and scientific basis, it has steadily increased from birth, gained in strength and influence, and won for itself the support and approval of our brethren throughout this country—to-day more powerful, more self-reliant, more progressive and stronger in the affection of its members than at any former period of its existence."

DR. W. W. DAWSON, Chairman of the Committee of Arrangements, announced an

INFORMAL RECEPTION

at the Burnet House at eight o'clock in the evening, to which ladies were invited.

SECTION MEETINGS.

DR. N. S. DAVIS announced that as some Sections had too much work on the programme for sessions of usual length, he would offer a resolution that the Sections be permitted to meet at eleven o'clock in the morning. Adopted unanimously.

DR. N. S. DAVIS announced that as the Secretary of the

JUDICIAL COUNCIL

had tendered his resignation owing to ill health and removal to the Pacific Coast, no preliminary notification of the meeting of the Council had been given. Fortunately there was no work before the Council. He then gave notice of a meeting to be held in the Burnet House parlor May 9th, at nine A. M., for the purpose of organization and to consider whatever might be referred to the Council.

INVITATIONS

were read inviting the Association to visit the Chamber of Commerce, the College of Music, and the Technical School of Cincinnati.

WEDNESDAY, MAY 9TH.—SECOND DAY.

The Association was called to order at 10 o'clock by the President.

DR. ROBERTS BARTHOLOW, of Philadelphia, delivered the

ADDRESS IN MEDICINE,

which will appear in full in our issue of next week.

The report of the Trustees of

THE JOURNAL

was read by Dr. J. H. Hollister, Secretary. The number of members and subscribers was stated to be 4572, exchanges and extras, to complete files, raised the total weekly issue to 5000 copies. The receipts above the dues paid to the Treasurer of the Association, embracing subscriptions, advertisements, etc., for the year ending March 31st last, was $11,897.98, or $4,317.35 above the receipts for the preceding year. The total expenditures for publishing for the year ending March, was $16,261.67, being an increase of $3099.66 over the preceding year. The increase was caused by the addition of four pages of reading matter and of four to six pages of advertisements, and by the sending out of sample copies.

The *Journal* is, therefore, an actual source of revenue to the Association, and the Board of Trustees recommended that the increased receipts be expended in improving the *Journal*. They have decided upon using new type and better paper during the next year. They recommended an enlargement of the editorial corps, and requested that the exchanges and books sent for review be placed at the disposal of the editor instead of being sent to the library of the Association.

The report of the

COMMITTEE ON DIETETICS

was presented by Dr. E. A. Wood, of Pittsburg, Chairman. It recommended the importance of forming a section on dietetics and dwelt upon the recent prominence given to the subject, and the necessity for its greater recognition by the profession.

DR. WOODBURY, of Philadelphia, presented the report of a sub-committee on infant feeding, and

DR. L. A. SAYRE, of New York, moved that the committee be authorized to give the work a proper place in the programme for next year's meeting. Adopted.

DR. BENJAMIN LEE, of Philadelphia, moved that the committee be continued, with instructions to present at the next meeting a report embodying the general principles to be observed in a rational system of dietetics. Adopted.

DR. N. S. DAVIS, of Chicago, moved the adoption of the three proposed amendments to the constitution: First, to amend Section 2, relating to *Membership by Ap-*

plication, by substituting the following: "Membership by application shall consist of such members of the State, County, and District Medical Societies entitled to representation in this Association as shall make application in writing to the Treasurer, and accompany said application with a certificate of good standing, signed by the President and Secretary of the Society of which they are members, and the amount of the annual membership fee of five dollars. They shall have their names upon the roll and have all the rights and privileges allowed to permanent members, and shall retain their membership on the same terms." Adopted.

Second, to amend Section 5, relating to *Standing Committees*, "The *first and third paragraphs* should be stricken out, leaving intact only the second paragraph, relating to the Committee of Arrangements. In place of the first paragraph to be erased, your committee recommend the insertion of the following important provision, viz.:

The General Committee or Council shall be composed of *two members* from each State and Territorial Medical Society entitled to representation by delegates in the Association, and from the Medical Departments of the U. S. Army, Navy, and Marine Hospital Service. They shall be chosen by the members registered and present at each annual meeting, from each State, Territory, and from the Medical Corps of the U. S. Army, Navy, and Marine Hospital Service, acting separately, on the third day of each annual meeting; each delegation reporting the names of the members chosen to the Permanent Secretary of the Association on the same day, that they may be announced by him at the opening of the morning session of the fourth day. At the first election each delegation shall choose *two* members of the General Committee, one of whom shall serve *one* year and the other *two* years, and at each annual election thereafter one member shall be chosen to serve for two years, thus making the term of office of members of the General Committee *two* years. It shall be the duty of the General Committee, thus constituted, to organize by choosing annually a Chairman and Secretary, and such sub-committees as may be found necessary to facilitate the work that may be assigned to it; to meet annually at the place and on the day preceding each annual meeting of this Association, and as often during that week as may be necessary; to nominate, on the third day of each annual meeting, all the general officers of the Association (none of whom shall be members of its own body), the members of the Committee of Arrangements, the Committee on Necrology, seven member of the Judicial Council, and three members of the Board of Trustees for Publication for election by the Association; to recommend the place and time of holding the next annual meeting; and to consider and report upon all subjects that may be referred to it by vote of the Association. The presence of one-third of the whole number of members elected to the General Committee shall constitute a quorum for the transaction of business. If, at any annual meeting of the Association it shall be found at the close of the general meeting of the first day that a quorum of the General Committee is not present, it shall be the duty of the President and Permanent Secretary to fill the vacancies in the Committee temporarily by selections from the lists of delegates registered as present from the States to which the vacancies belong.

In place of the third paragraph, the following:

"The *Board of Trustees* shall consist of nine members, three of whom shall be elected annually on the nomination of the standing General Committee, and shall serve for three years. It shall be the duty of the Board to provide for and superintend the publication and distribution of all such proceedings, transactions, and memoirs of the Association as may be ordered to be published, and in such manner as the Association may direct; and in doing this, it shall have authority to appoint an editor and such assistants, and determine their salaries, and procure and control such materials, as may be necessary for the accomplishment of the work assigned to it. Further, to facilitate its work, it shall be the duty of the Secretaries of the Association and of the several Sections, during each annual meeting, or as soon thereafter as practicable, to deliver to the Board, or such editor or agent as it shall appoint, all such records of proceedings, reports, addresses, papers, and other documents as may have been ordered for publication, either in the general sessions or in the sections. All moneys received by the Board of Trustees or its agents, resulting from the discharge of the duties assigned them, must be paid to the Treasurer of the Association, and all orders on the Treasurer for disbursements of money in any way connected with the work of publication, must be endorsed by the President of the Board of Trustees. It shall be the further duty of the said Board of Trustees to hold the official bond of the Treasurer for the faithful execution of his office; annually to audit and authenticate his accounts, and present a statement of the same in its annual report to the Association; which report shall also specify the character and cost of all the publications for the Association during the year, the number of copies still on hand, and the amount of all other property belonging to the Association under its control, with such suggestions as it may deem necessary."

DR. J. M. KELLER, of Arkansas, strongly objected to the proposed amendments.

DR. J. B. MURDOCH, of Pittsburg, moved to recommit the amendments.

DR. N. S. DAVIS, of Chicago, stated that their object was to imitate the British Medical Association, and take all the duties connected with the management of the Association from the general meetings, and confine it to the scientific and social features.

DR. VAUGHAN, of Ann Arbor, thought the very reasons given by Dr. Davis the best reasons for opposition to the amendments; the Association has no desire to abandon the management of its own affairs.

DR. MURDOCH moved that the amendments be made the special order of business for Thursday, at twelve o'clock, and his motion was carried.

THE COMMITTEE ON NOMINATIONS

was announced as follows:

Arkansas.— P. O. Hooper, M.D.
Colorado.—H. S. Orme, M.D.
Connecticut.—W. C. Wile, M.D.
District of Columbia.—D. W. C. Patterson, M.D.
Georgia.—R. Battey, M.D.
Illinois.—C. Gilman Smith, M.D.
Indiana.—T. B. Harvey, M.D.
Iowa.—P. W. Lewellen, M.D.
Kansas.—J. E. Minney, M.D.

Kentucky.—D. S. Reynolds, M.D.
Louisiana.—T. G. Richardson, M.D.
Maine.—A. Garcelon, M.D.
Maryland.—J. J. Chisholm, M.D.
Masssachusetts.—Charles J. Belch, M.D.
Michigan.—W. Brodie, M.D.
Missouri.—F. J. Lutz, M.D.
Minnesota.—A. J. Stone, M.D.
Nebraska.—R. C. Moore, M.D.
New Jersey.—I. N. Quimby, M.D.
New York.—L. D. Bulkley, M.D.
Ohio.—Thad. A. Reamy, M.D.
Pennsylvania.—A. M. Pollock, M.D.
South Carolina.—T. J. Ellis, M.D.
Tennessee.—T. K. Powell, M.D.
Texas.—J. Bell, M.D.
Vermont.—M. H. Chandler, M.D.
Virginia.—W. G. Eggleston, M.D.
Wisconsin.—J. T. Reeve, M.D.
United States Navy.—W. T. Heard, M.D.
United States Marine-Hospital Service.—John B. Hamilton, M.D.

THURSDAY, MAY 10TH.—THIRD DAY.

The Association was called to order at 10 o'clock by the President.

Resolutions from the Kansas and Arkansas State Medical Societies

DENOUNCING QUACKERY,

and the advertisement of irregular practitioners in the daily and religious papers, were read.

The Committee on Nominations presented the following list of nominees as

OFFICERS FOR THE ENSUING YEAR:

President.—W. W. Dawson, M.D., of Cincinnati.
Vice-Presidents.—Drs. W. L. Schenck, of Kansas; Frank Woodbury, of Pennsylvania; H. O. Walker, of Michigan; J. W. Bailey, of Georgia.
Treasurer.—R. J. Dunglison, M.D., of Philadelphia.
Secretary.—William B. Atkinson, M.D., of Philadelphia.
Librarian.—C. H. A. Kleinschmidt, M.D., of Washington.
Chairman of Committee of Arrangements.—Horatio R. Storer, M.D., of Newport, R. I.
Trustees of Journal.—Drs. E. M. Moore, of Rochester; J. H. Hollister, of Chicago; J. M. Toner, of Washington.
Judicial Council.—Drs. A. M. Pollock, of Pennsylvania; W. C. Van Bibber, of Baltimore; J. F. Hibberd, of Indiana; Charles S. Wood, of New York; J. McF. Gaston, of Georgia; W. H. O. Taylor, of New Jersey; George L. Porter, of Connecticut.

To fill a vacancy, W. B. Phillips, M.D., of Kansas.

To deliver addresses in

General Medicine.—William Pepper, M.D., of Philadelphia.
Surgery.—P. S. Conner, M.D., of Cincinnati.
State Medicine.—W. H. Welch, M.D., of Baltimore.

The following sub-committee was appointed to fill vacancies in case of the declination of any of the appointees to deliver general addresses: Drs. J. B. Hamilton, of Washington; William Brodie, of Detroit; and A. Garcelon, of Maine.

Next place of meeting.—Newport, Rhode Island.
Time.—First Tuesday in June.

The Committee on

THE RUSH MONUMENT FUND

submitted a report stating that the collection of subscriptions was slow and unsatisfactory, although the project received universal approval and commendation. The Committee expressed the hope that the requisite money would soon be collected.

THE TREASURER'S REPORT

exhibited receipts to the amount of $25,649.90, expenditures, $23,242.07; and showed a balance of $2407.83.

DR. KLEINSCHMIDT reported that the

ADDITIONS TO THE LIBRARY

for two years numbered 369 distinct titles. Total number of volumes in the library 7500, comprising 2850 titles. He recommended a subscription of ten dollars to the *Index Medicus*, which was ordered.

THE AMENDMENTS TO THE CONSTITUTION

were then considered.

DR. N. S. DAVIS moved that they be laid on the table for one year. Adopted.

The following new amendments were then offered:

To strike out the last clause in Section 7, requiring delegates to affix their names to the Constitution. Also to form a Section on Pharmacy to meet with the Association, but to have no voice in its transactions.

It was resolved that in future delegates and permanent members when registering shall

INDICATE THE SECTIONS THEY WILL ATTEND

and in which they will vote for Section officers.

DR. W. H. DALY, of Pittsburg, moved to reconsider the permission given for the

MEETING OF SECTIONS IN THE MORNING,

and after animated discussion this was carried.

THE PHARMACEUTICAL DISPLAYS.

DR. WM. BRODIE moved that hereafter the Committee of Arrangements be instructed not to arrange for a display of drugs, etc., in connection with the meeting.

DR. I. N. QUIMBY thought that this was going too far, as it might be interpreted as opposition to education by the Association.

The motion was laid on the table.

RESOLUTIONS FROM THE WOMEN'S CHRISTIAN TEMPERANCE UNION,

urging physicians to substitute other stimulants for alcohol, were read and then tabled.

THE OFFICERS OF SECTIONS

were then announced as follows:

MEDICINE.—*Chairman*, F. C. Shattuck, M.D., of Boston. *Secretary*, G. A. Fackler, M.D., of Cincinnati.

SURGERY.—*Chairman*, N. P. Dandridge, M.D., of Cincinnati. *Secretary*, W. O. Roberts, M.D., of Louisville.

STATE MEDICINE.—*Chairman*, J. B. Lindsley, M.D., of Nashville. *Secretary*, J. Armstrong, M. D., of Massachusetts.

Ophthalmology.—*Chairman*, G. E. Frothingham, M.D., of Ann Arbor. *Secretary*, G. O. Savage, M.D., of Tennessee.

Diseases of Childrex —*Chairman*, J. A. Larrabee, M.D., of Kentucky. *Secretary*, C. J. Jennings, M.D., of Michigan.

Medical Jurisprudence.—*Chairman*, J. G. Kiernan, M.D., of Chicago. *Secretary*, —— Evans, M.D., of Baltimore.

Obstetrics.—*Chairman*, W. H. Wathen, M.D., of Louisville. *Secretary*, A. B. Carpenter, M.D., of Ohio.

Dentistry.—*Chairman*, —— Rebwinkel, M.D., of Ohio. *Secretary*, E. P. Talbot, M.D., of Chicago.

Adjourned.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, April 20, 1888.

Dr. Trenholme in the Chair.

Dr. Trenholme exhibited a large

multilocular ovarian cyst,

weighing twenty-eight pounds, which he had removed from a woman aged forty. The case presented no unusual difficulties and was doing well. It had been first noticed eighteen months before and had grown very rapidly.

Dr. Lafleur presented the specimens obtained from an old man who had died after perineal section which had been performed for

urinary infiltration.

The patient, a man aged seventy-two, was suffering from severe urinary infiltration, which had come on after the use of instruments for retention of urine. He was admitted into the general hospital, under Dr. Shepherd, who immediately performed perineal section, and evacuated a large quantity of stinking, purulent urine and sloughing tissue, which occupied the perineum and had separated the rectum from the prostate gland. No trace of a membranous urethra could be found at the time of the operation, so a catheter was introduced into the bladder through the prostatic urethra, and the bladder thoroughly washed out with a solution of boric acid. The catheter was left in for drainage. The man at the time of the operation was in a very bad condition, and survived only thirty-six hours. At the autopsy the following conditions were found: œdema and gangrene of the scrotum, edges of the perineal wound sloughy; an abscess cavity about the size of a large walnut was found between the neck of the bladder and the rectum, and contained a little foul urine and shreds of necrosed tissue. No trace of the membranous urethra. Prostate gland enlarged. Both kidneys enlarged; the pelvis of right kidney distended and filled with urine, the pelvis of left kidney filled with pus; ureters much thickened. On section of left kidney spots showing commencing abscess. Pneumonia of lower lobe of right lung; upper lobes hyperæmic; commencing pneumonia of base of left lung. Heart pale, soft, and friable. Patient evidently died of heart failure occurring in course of pneumonia.

Dr. Lafleur also presented the specimens obtained from a patient under the care of Dr. Bell, who died from the effects of

abscess following perforation of the appendix, complicated with iodoform mania.

The case was interesting also because the man during treatment had been affected with mania supposed to be due to iodoform. Dr. Bell gave the following history:

The patient, a very stout man, aged forty-five, of unsteady habits, was admitted into the general hospital in July 1887, suffering from symptoms of perityphlitis. He was discharged, apparently cured, in a few weeks, but returned in December with numerous sinuses in the lower part of the abdomen and scrotum. All these sinuses led to the right iliac fossa, which was occupied by much dense inflammatory tissue. These sinuses discharged a large amount of fetid pus. Dr. Bell, under whose charge the patient was, opened up and scraped the sinuses, and evacuated many pockets of pus, but could not find the source of the pus in the iliac fossa. The wounds were packed with iodoform gauze and a dressing of washed gauze applied. The temperature of the patient, which had ranged from 100° to 103° F., became normal, and he gained strength rapidly. Three weeks after he suddenly became maniacal. After this no dressings could be kept on and the patient's condition gradually grew worse, temperature became high and irregular, and two weeks after he died suddenly apparently from collapse. He never recovered his sanity. No family history of insanity. At the autopsy Dr. Lafleur found the following conditions: Abdomen distended, peritoneum contained five ounces of turbid fluid with flakes of lymph; no evidence of recent peritonitis. Appendix firmly matted to surrounding structures; perforation about a quarter of an inch long about its middle. Deep pigmentation and inflammatory thickening of tissues about the appendix. From the appendix sinuses, all of them with indurated and deeply pigmented walls, ran in three directions. (1) The oldest sinus beneath the cæcum upward and backward beneath the sheath of the psoas muscle to the internal arcuate ligament of that side, where it ended in a cul-de-sac. (2) The second sinus ran outward and forward over the iliacus muscle and divided in the abdominal wall into several branches which ran parallel to the fibres of the external oblique and opened externally to the lower wall of the abdomen. (3) The third sinus ran downward and forward through the pelvis and opened into the perineum externally. There was no abscess cavity about the cæcum or appendix. The liver was enlarged, and on the under surface of the right lobe there was a fluctuating swelling the size of a large orange, which on incision was found to contain five ounces of stinking pus. Another abscess was found on the upper surface of the right lobe near the coronary ligament. There were no thrombi in portal or hepatic veins. Spleen enlarged and soft. There is no doubt these abscesses were pyæmic.

Dr. Bell read a paper on

some rare forms of urinary extravasation.

The first case was that of a sailor, aged thirty-two years, who was admitted into the hospital September 3, 1887, with retention of urine. He had suffered from stricture for fifteen years, and had been treated in marine hospitals all over the world. He was in the habit of passing himself a No. 2 silver catheter when he had attacks of retention; this time he failed to introduce the catheter or the stilette which he had tried. The house surgeon

passed a No. 2 catheter to draw off the urine, this was followed by a temperature of 105°. When he recovered sufficiently Dr. Bell performed internal urethrotomy, and dilated the canal to No. 34 French. There was only one stricture, viz., at the root of the penis. The following day patient complained of pain about the anus, and there was considerable tenderness in the perineum, but no swelling. Urine passed freely; the inflammation about the rectum and anus increased, and on the 12th of September it was found that the lower end of the rectum was everywhere surrounded by pus; a deep incision was made posteriorly through the sphincter for drainage, and the parts thoroughly washed out. Three days after a piece of the rectum, measuring nearly four inches in length, sloughed away. The patient after this rapidly improved, and left the hospital on October 24th. Defecation and micturition were normal. Dr. Bell said that he had no doubt that this patient, in passing a fine catheter, when thrust under the neck of the bladder about the apex of the prostate, made a false passage, behind the posterior layer of the triangular ligament, and that urinary infiltration took place in the peri-rectal cellular tissues, and caused the slough.

The second case of extravasation occurred into the pelvis from the reopening of a wound in the bladder which had been accidentally inflicted during the performance of an ovariotomy. The bladder when wounded had been immediately closed with Lembert's suture. The patient went on well for twelve days, the urine being drawn off with a catheter. On the thirteenth day a small painful lump was felt at the lower end of the abdominal incision; on the eighteenth day this lump suddenly disappeared, and at the same time there was pain and tenderness in the left iliac fossa and diminution in the quantity of urine evacuated by the catheter. The lower end of the wound was reopened and urine immediately flowed, and with the finger an opening could be felt in the fundus of the bladder. A sinus led down into the left side of the pelvis, through this a drainage tube was passed into the vagina, the whole cavity and bladder were then thoroughly washed out with boric acid solution, the wound freely dusted with iodoform, and a gauze dressing applied. Patient immediately improved. Four days later sloughs began to come away in enormous masses. To facilitate the separation of the sloughs an incision was made into the left loin. The parts were daily irrigated, and afterward dusted over with iodoform. By the 20th of October the wounds were looking healthy, and all serious symptoms had disappeared. The woman apparently was progressing toward recovery. On November 1st she suddenly developed an acute mania, and from this time, although the local conditions continued to improve, the patient had to be forcibly restrained, she refused food, and was in a continuous state of maniacal excitement. She died on November 8th, much emaciated. No autopsy could be obtained.

Dr. Bell regarded the acute maniacal condition as the immediate cause of death, and he thought the mania due either to the toxic effects of the iodoform or the absorption of ptomaines and leucomaines from the urine retained and decomposing in the cellular tissue of the pelvis.

There was no history of insanity in patient's family. Dr. Bell also said that this case more fully impressed him than ever with the unreliability of catgut as a suture to retain the contents of a hollow viscus. Catgut was used in this case because no suitable silk was at hand.

A third case was mentioned, in which during the performance of an ovariotomy a strong fibrous band connecting the tumor with the base of the bladder was stripped off from the latter, tearing away a small portion of its peritoneal covering. Two weeks after the operation a small inflammatory mass appeared at the lower angle of the abdominal wound from which amber-colored fluid escaped. A large soft catheter retained in the urethra for ten days not only gave immediate relief to the symptoms, but effected a complete cure.

Dr. Fenwick had listened to Dr. Bell's paper with great interest. Speaking of the case of ovariotomy where the bladder was accidentally wounded, he said that sometimes this accident was unavoidable; he himself had, once wounded a prolapsed bladder when operating for hernia, but the patient ultimately made a good recovery. He had seen several cases of mania produced by iodoform, the most recent case was that of a stout old man on whom he had performed lateral lithotomy, iodoform was introduced into the wound, and the patient several days after became affected with mania which lasted about two weeks; he, however, recovered perfectly.

Dr. Shepherd said that the autopsy in the case of perforation of the appendix showed that death had been due to septic poisoning. He did not attribute the fatal result to iodoform poisoning, though the man never recovered his sanity. He had assisted Dr. Bell when the numerous deep sinuses were laid open, and confirmed his statement of the great difficulty of tracing them to their source. Although a pericæcal abscess was suspected, yet, owing to the enormous thickness of the abdominal walls, the great amount of inflammatory tissue, and the severe hemorrhage, it was felt that further exploration was not justifiable. The autopsy showed that even had the abdomen been opened it is very probable the small abscess connected with the appendix would not have been found. The case of urinary infiltration following wound of the bladder during the performance of ovariotomy was also most interesting, from the fact of the probability of death being due to iodoform poisoning. He had had several cases of mania following operations, in all of which iodoform had been used, though only in small quantities, and he was in doubt whether or not to attribute the mania to iodoform, to the anæsthetic, or to traumatism. In all these cases there was an hereditary taint. Only one died, a case of sequestrotomy of the femur in a man aged twenty-five. Acute mania came on five days after the operation, only about one drachm of iodoform was used. In another case where a peri-cæcal abscess was opened in a man aged forty, acute mania came on the second day and continued one month; the patient recovered perfectly. A very small amount of iodoform was used, and only at time of operation. Several of the patient's immediate relatives died insane, and he himself was subject to fits of ungovernable temper. The third was a case of amputation of the breast in a woman aged sixty. A mild form of insanity immediately followed from the anæsthetic, and the woman never completely recovered up to the time of her death, a couple of years after, from cerebral hemorrhage.

Dr. Roddick was much interested in the cases of iodoform poisoning; he had seen one case follow excision of the breast. There was a history of insanity in the

family. The mania lasted only ten days. He thought iodoform should be used with more care, large quantities are not necessary; he had often found it produce severe eczematous irritation of the skin. He now used carbonate of bismuth in preference to iodoform, as it is non-irritating. He also sometimes employed boric acid and naphthalin. Lately he had been using hydronaphthol with benefit. It is odorless and non-irritating. Referring to the case of urinary infiltration reported by Dr. Bell, he thought the explanation of the case by supposing perforation of the prostate and posterior layer of the triangular ligament was not necessary, as it is well known that when the membranous portion of the urethra is perforated and urine escapes behind the anterior layer of the triangular ligament, the tendency of the fluid is to infiltrate backward toward the rectum and not to come forward. If the posterior ligament is perforated, then the infiltration extends behind the pelvic fascia into the pelvis and is generally fatal.

DR. STEWART had seen Dr. Bell's first case and considered it a case of iodoform poisoning. It is well known in these cases of mania from any cause that the mania remains long after the removal of the cause.

Cases in which there is much adipose tissue are more liable to poisoning, because the fat decomposes the iodoform.

DR. ARMSTRONG asked if it was necessary to use iodoform; it has been proved to have no germicidal qualities. He thought its use entirely unnecessary in the treatment of sinuses.

DR. TRENHOLME, referring to the case mentioned in Dr. Bell's paper, where the bladder was wounded, said that the bladder should never be emptied before operation. Should it be accidentally wounded then sutures of shoemaker's thread or silk should be used, not catgut, which is very unreliable.

THIRD FRENCH CONGRESS OF SURGERY.

Held in Paris from March 12 to 17, 1888.

(Specially reported for THE MEDICAL NEWS.)

(Concluded from page 502.)

LARYNGOTOMY AND TRACHEOTOMY IN CASES OF FOREIGN BODIES IN THE LARYNX.

DR. LABBÉ, of Paris, presented a small metallic star, which he extracted from the larynx of a child who had swallowed it, by laryngotomy; it had implanted itself exactly between the two vocal cords. At the moment the child did not complain, but during the night symptoms of suffocation set in; the physician called thought he had to deal with a case of spasmodic laryngitis. A few days later the child was brought to Dr. Labbé; he tried to take out the foreign body by the mouth, but finding it impossible to do so, he resorted to thyrotomy. He did not follow the good advice given by Morell Mackenzie, of performing tracheotomy before the other operation. Thyrotomy was performed at once, the thyroid cartilage opened on the median line; but at the moment M. Labbé was about to seize the foreign body a few drops of blood fell into the trachea and caused most dangerous fits of suffocation, which necessitated immediate tracheotomy. Respiration was only restored forty-five minutes later by artificial means. The heart, however, continued to beat strongly during this interval. The cartilage was then replaced, also the soft parts. The canula could only be taken out on the eighth day. On the fifteenth the child was perfectly well. This shows the necessity of a preliminary tracheotomy before the extraction of foreign bodies can be made with security.

CHOLECYSTOTOMY IN CHILDREN.

DR. VINCENT, of Lyons, presented the history of a girl eight and a half years old, who had an enormous biliary tumor, containing three quarts. The diagnosis was made by elimination. The incision was made along the external border of the rectus muscle, which brought the operator on the convex surface of the liver; the incision had to be extended to the umbilicus, to reach the bladder, which was then extirpated. On the fourth day, a severe hemorrhage, coming from the liver, which had rubbed against the abdominal sutures, appeared, and the patient died. In children, the median supra-umbilical incision is to be preferred to the classical lateral incision, because the liver being drawn down, and the bladder carried to the median line, the median incision allows one to explore much better the biliary vesicle and ductus choledochus; also, it prevents the placing of sutures on a level with the liver, and so produces ulceration and fatal hemorrhage. The median incision allows also the early exploration of the left surface of the biliary tumor, to ascertain the presence or disappearance of the ductus choledochus, and, as in this case, to meet with the juxtaposition of the duodenum and bladder, and proceed to enterochlecystotomy—that is, the establishment of an artificial perforation which will allow the passage of the bile into the intestine, when the duct cannot be found.

TREATMENT OF ERECTILE TUMORS BY ELECTROLYSIS.

DR. BORIES, of Montauban, presented a case of arterial angioma of the upper lip, which had a great tendency to extend and produce very grave hemorrhages. During four months, for every day, he treated his patient by electrolysis. Each sitting lasted eight to ten minutes, but contrary to the practice of MM. Schwartz and Redard, who introduce only the positive needle, he introduced both needles, one at the side of the other; the hemorrhage accompanying each operation was insignificant. At the end of the four months coagulation was complete; to correct the deformity he used Cangoin's arrows and made an autoplasty.

RAPID MEASURING OF ASTIGMATISM.

DR. JAVAL, of Paris, said that astigmatism being one of the most frequent ocular affections which we have to remedy, it becomes important to find out means for the rapid measurement of this faulty vision. To appreciate the inequalities of the corneal curve, Helmholtz invented an ophthalmometer thirty years ago. But to utilize the instrument, it is necessary to spend a week's study on one eye, and to make complicated calculations. The ophthalmometer which he constructed in 1881 permitted one to measure a corneal astigmatism in less than a minute. To-day, by the aid of a quadriprism, he thinks he can make this measurement instantaneously.

TREATMENT OF SUPPURATION CONSECUTIVE TO EYE TRAUMATISM.

DR. ABADIE, of Paris, said that the conjunctival surface is covered with microbes, and particularly its cul-de-sac.

Out of 178 cultures practised with a little mucus from the superior conjunctival cul-de-sac, 139 produced vegetations, 39 remained negative. After any traumatism, and before resorting to an operation, one must make a sub-palpebral irrigation sufficiently strong to wash away mechanically all the microbes. The liquid used does not need to be irritant, it must only be aseptic. If, notwithstanding every precaution, he finds inoculation and suppuration at one point, as strong antiseptic solutions are not tolerated, he proceeds as follows: He touches lightly the centre of the purulent spot with the galvano-cautery at white heat, and he repeats these cauterizations every twelve hours. If the suppuration occurs after a cataract operation, the little cautery points are applied along the wound without extending over the neighboring tissue. Systematically repeated every twelve hours, they arrest completely the diseased condition, and often save the cornea from certain destruction.

TREATMENT OF DISPLACEMENTS OF THE WOMB.

Dr. Doléris, of Paris, said that since 1885 he has adopted the following treatment for displacements of the womb. His method is based on the conditions of the pelvic equilibrium studied experimentally on young girls at the time of puberty, after partial operations, and after interventions for the restoration of the organs as regards the normal status of the uterus. He then studied the variable displacements of the womb and their usual complications: deviations of the neck, hypertrophic or atrophic conditions of certain parts of the womb, displacements or hernias of the bladder and rectum (rectocele, cystocele), laceration of the perineum, chronic inflammations. The plastic operations are insufficient, they only mask the lesions, without curing them. Prosthetic operations, pessaries, shortening of the round ligaments, were also insufficient; most of the time, the cure of inflammatory conditions is only a temporary one, and comes back if the displacement persists. The factors of uterine equilibrium are of three kinds: 1. The ligaments, or suspensory apparatus; 2. The central apparatus for attachment of the ligaments; 3. The pelvic floor, or sustaining apparatus. Basing his operative interferences on these indications, he has made 30 operations with success, combining the shortening of the round ligament with colporrhaphy or perineorrhaphy.

WOUND OF THE STOMACH - CURE.

Dr. Reynier, of Paris, communicated the case of a man who had a stomach wound produced by a revolver ball a quarter of an inch in diameter. The stomach was empty at the time of the accident, there being no great amount of hemorrhage, of meteorism, or symptoms of peritoneal reaction. M. Reynier did not interfere. The cure was completed without accident. He does not, however, on account of this lucky case, recommend systematic abstention in cases of wounds of this kind. The wounding of an empty stomach, without signs of important hemorrhage, does not necessitate an immediate interference, on the contrary; it becomes necessary when the lesion has been produced, on a stomach containing food, or else the contents would go out into the peritoneum.

NEW OPERATION TO REMEDY AN OLD DISLOCATION OF THE PATELLA.

Dr. J. Lucas Championnière, of Paris, presented the following new method to the Congress. A man, aged twenty-eight years, with an outward dislocation of the knee, which had lasted for more three months, came to him on January 28, 1888. This man walked very badly, his thigh atrophied more and more every day. The patella dislocated outwardly could be brought to its place, but on the least flexion it returned to its abnormal position. He then thought he might create a new place for the patella. On February 16th he opened the articulation by a long incision, inside of the patella, the patellar tendon, and the rectus femoris, then with the chisel and hammer he cut a deep cavity in the bony substance of the internal condyles, extending somewhat on the cartilage. The patella placed in this position was maintained in place by the crest, by a regular wall placed to the outside. He applied catgut sutures to the rectus femoris and patellar tendon; superficial and deep sutures. A drainage tube left in the inferior portion of the articulations was taken away at the first draining on the fourth day. At the second dressing, on the tenth day, the wound was healed, and from that date he began to move the articulations. He did not know what would become of the patient. He thought, however, that this operation might be of service in analogous cases.

RIZZOLI-ESMARCH OPERATION.

Dr. Leorat, of Lyon, presented the case of a child, six and a half years old, suffering from unilateral ankylosis of the maxillary joint. The ankylosed ramus of the jaw was cut without entering the mouth, and the periosteum was completely destroyed. He then left the parts in this state, expecting a non-consolidation and the formation of a pseudo-arthrosis on that side, as the other side was normal. He would probably have succeeded had the consolidation not been interfered with by scarlet fever. The patient then could separate his incisor teeth to the extent of half an inch; at the end of a year he could masticate meat.

THE FOLLOWING OFFICERS WERE ELECTED FOR THE NEXT CONGRESS.

President.—Baron Larrey, Surgeon-General, French Army (Retired).

Vice-President.—Prof. Guyon.

General Secretary.—Dr. Pozzi.

Secretaries.—Drs. Castex, Coudray, L. H. Petit, Picqué.

CORRESPONDENCE.

THE AMERICAN MEDICAL ASSOCIATION.

(*By Telegraph from our Special Correspondent.*)

Cincinnati, May 10, 1888.

Taken all in all, the Thirty-ninth Annual Meeting of the American Medical Association has been a grand success. Both scientifically and socially it is an advance over the meetings of the last few years. The advance in the character of the scientific work is nowhere more markedly apparent than in the surgical section, where owing to the efficient efforts of its Secretary, Dr. B. A. Watson, no less perhaps than to its President, Dr. Donald McLean, a number of representative men, who in the past have to a great extent stood aloof from the Association, have this year been induced to take part in the proceedings. A glance into the hall of meeting might well lead one to suppose that the American Surgical Association was in session.

Abdominal surgery is almost the exclusive topic of discussion. Papers of rare interest were read. Dr. Senn, as usual, was a most valuable contributor. This time he excelled all his previous contributions by his demonstration of his infallible method of diagnosis of intestinal perforations by the rectal injection of hydrogen gas. Three experiments on dogs made before the Section were perfectly successful, and demonstrated the practicability of the method; while reports of similar experiments on human subjects showed its applicability to surgery.

Almost without exception general and perfect harmony has prevailed. But few contentionists were present, and all past unpleasantness seems to have been buried and forgotten.

The amendment proposed by Dr. N. S. Davis taking the executive power from the Association was not acceptable, and is thought not to be in keeping with the character of American institutions.

The election of Dr. W. W. Dawson, of Cincinnati, to the presidency gives general gratification, especially to the Cincinnati profession, who earnestly desired for their popular representative this mark of distinction.

The great social event of the meeting was the reception on Thursday night. It was not only one of the most magnificent receptions ever tendered to the Association, but was the most brilliant gathering that for years has graced this city.

A MODIFIED LITHOTOMY STAFF.

To the Editor of THE MEDICAL NEWS,

SIR: In your issue of May 5th I see that Professor John H. Brinton, M.D., of the "Jefferson Medical College," claims a modification of the groove in a staff for lithotomy. I should like to remark, through your paper, that the staff with the grooved modification, which is described by Professor Brinton, was first used by the late Nathan R. Smith, M.D., late Professor of Surgery in the "University of Maryland," and is still used by Christopher Johnston, M.D., Emeritus Professor of Surgery in the same university, and also by my father, Alan P. Smith, M.D., who has used it in eighty odd cases. Feeling sure that this is merely an error of Professor Brinton's, I will close by quoting a paragraph from a work entitled *Hints on the Operation of Lithotomy*, by Nathan R. Smith, M.D., which was published in 1831, in which Professor Smith says:

"I would here remark, that the staff which I prefer to employ is grooved neither directly on its dorsum, nor yet on its side, like that of Mr. Bell, but obliquely and midway between these two aspects. This is to enable the operator, after having introduced his knife into the grooved staff, to give its edge an outward and downward inclination, so as to make the incision in that direction without danger of the knife being thrown out of the groove of the staff by the prominence of the edge which is on the side of the staff."

Very truly,

NATHAN R. SMITH, M.D.

BALTIMORE, MD., May 7, 1888.

LAPAROTOMY FOR PERITYPHLITIC ABSCESS.

To the Editor of THE MEDICAL NEWS,

SIR: May I change a statement made by Dr. Mears in your issue of May 5th relative to the time of opening a perityphlitic abscess from perforation of the appendix, since I am quoted as fixing the time of operation at the fifth day of the disease? Permit me to say that my rule is somewhat different, viz., if a tumor is present, I prefer to ascertain by an aspirator puncture, repeated several times if necessary, whether pus be present, and then to operate irrespective of any fixed time. If a tumor be present, and no pus be detected by aspiration, and, moreover, if no marked symptoms of peritonitis be present, *i. e.*, general pain or persistent vomiting, one may wait. Should, however, with a right iliac tumor the above symptoms be associated, in my judgment a lateral exploratory incision should be resorted to.

Dr. Morton, who in the same journal has reported a recovery from what appears, from his statement that he "washed out the abdominal cavity," to have been a case of general suppurative peritonitis, is to be congratulated on his success, for it is the first that has occurred in some sixteen instances in which this operation has been done. I leave out of this collection the case of Homans, and those more recently reported by Elliot and Sands, as these were localized intra-peritoneal abscesses, and in them the general abdominal cavity was not invaded by the disease. Yours, very truly,

R. F. WEIR.

NEW YORK, May 7, 1888.

NEWS ITEMS.

Sir Morell Mackenzie's professional brethren have been greatly gratified by the confidence placed in him by the Emperor Frederick, and by the extraordinarily warm appreciation of the English physician's services which His Majesty has expressed both by word and deed. In conferring on Sir Morell Mackenzie the honors and decorations which he has so well earned, the Emperor added immensely to their value by a letter written with his own hand, of which the following is the full text:

"CHARLOTTENBURG, April 9, 1888.

"MY DEAR SIR MORELL: You were called in to me at the unanimous desire of my German doctors who were treating me. As I did not know you personally I had confidence in you on account of that recommendation, but I soon learned from personal experience how to value you. You have rendered me most valuable services. In recognition of those services, and as a souvenir of my accession to the throne, I have pleasure in conferring upon you the Comthur Cross and Star of my Royal Order of Hohenzollern. Your well disposed

"TO SIR MORELL MACKENZIE." "FRIEDRICH."

One does not need to "read between the lines" of this letter to perceive its significance. The first sentence fully disposes of various mythical accounts of the way in which Sir Morell Mackenzie was called in to the case which have been current in the profession and in society. Before subjecting the heir to the Imperial Crown of Germany to a formidable operation—which might, possibly, be attended with disastrous consequences, not only to the august patient, but to the whole of Europe—Professor von Bergmann naturally wished to have the sanction of an expert whose authority would be generally recognized. The choice lay between the leading English laryngologist and Professor Rauchfuss, of St. Petersburg, and the former was selected, as the Emperor says, "at the unanimous

desire of my German doctors." The concluding words in which the Emperor speaks of his accession to the throne prove beyond all doubt that His Majesty believes that it is to Sir Morell Mackenzie's "masterly inactivity" that he owes his present position, with all that it involves. We are pleased to see that the people of Germany are beginning to judge Sir Morell Mackenzie's conduct of a most difficult and anxious case in a fairer spirit than some persons there seemed at first inclined to do.—*British Medical Journal*, April 21, 1888.

The Life of Matthew Arnold, from a Medical Standpoint.—The *British Medical Journal* of April 21, 1888, writes that the life and death of Mr. Matthew Arnold have a lesson of hope and a warning for the large number of persons who suffer from heart disease. Twenty-five years ago he consulted Dr.—now Sir Andrew—Clark, and was told he had valvular disease of the heart, but advised that if he exercised reasonable care it need not at all interfere with his career. For many years he rigidly adhered to the recommendations as to regimen and exertion which were given to him, and it is interesting and encouraging to recall that all his serious work in criticism, education, and theology was done within the last twenty-five years. His reports and essays on middle-class education, the *Essays in Criticism*, *Literature*, *and Dogma*, all belong to this period. Such a life is a striking proof that heart disease, even of a type generally accounted serious—for Mr. Arnold had disease of the mitral and aortic valves—need not interfere with the labors or the enjoyments of a successful career, provided only that the limitations and moderate restrictions to which the individual must submit are frankly recognized. Emboldened by long impunity, patients are disposed to come to believe that the precautions have been unnecessary, and to relax their vigilance at the very time when the approach of old age renders all more or less liable to weakness of the heart. The Arnold family are a remarkable instance of family predisposition to disease of particular structures; the father of Dr. Arnold, of Rugby, Dr. Arnold himself, and now two of his sons, have all succumbed to chronic heart disease.

A Bequest.—The late Professor Wagner, of Leipzig, left between $7000 and $8000 to found a Home for the School Children of Leipzig.

To Test a Wall for Dampness.—Nessler, in the *Chemiker Zeitung*, says that a sheet of gelatine laid against a wall suspected of dampness curls away from the surface if the suspicion is well founded.

NOTES AND QUERIES.

Early Laparotomy in Appendicitis.

To the Editor of THE MEDICAL NEWS,

SIR: In my remarks upon the specimens presented by Dr. T. G. Morton, at the meeting of the Philadelphia Academy of Surgery, held April 2, 1888, from two cases of removal of the appendix vermiformis by abdominal section, an error occurred in the statement that Dr. Weir fixes the time for operation by the lateral incision at *five* days. It should have read *two* days, and quoting Dr Weir *verbatim*, it should read "within *forty-eight hours* from the inception of the disease." Please insert this correction, and oblige, Yours respectfully,

J. EWING MEARS.

PHILADELPHIA, May 5, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING MAY 5, 1888.

HORD, W. T., *Medical Director*, and WOOLVERTON, T., *Surgeon*.—Ordered as delegates to represent the Medical Department of the Navy at the meeting of the American Medical Association, May 8th, at Cincinnati, Ohio.

BRADLEY, GEORGE P., *Surgeon*.—Ordered to Navy Yard, Brooklyn, N. Y., without delay.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM MAY 1 TO MAY 7, 1888.

DE LOFFOE, A. A., *Captain and Assistant Surgeon*.—Granted leave of absence for six months, on surgeon's certificate of disability, with permission to go beyond sea.—*S. O 99., A. G. O.*, April 30, 1888.

LAUDERDALE, JOHN V., *Captain and Assistant Surgeon*.—Ordered from Fort Clark, Texas, to Fort Davis, Texas.—*S. O. 98, A. G. O.*, April 28, 1888.

EDIE, GUY L., *First Lieutenant and Assistant Surgeon*.—Now under orders to report for duty to the commanding officer, Fort Douglas, Utah Territory, will accompany the Eighth Cavalry from the Department of Texas to the Department of Dakota, and, upon completion of this duty, will proceed to Fort Douglas.—*S. O. 99, A. G. O.*, April 30, 1888.

MCCAW, WILLIAM D., *First Lieutenant and Assistant Surgeon*.—Relieved from duty at Fort Leavenworth, Kansas, and ordered for duty at Fort Crawford, Colorado.—*S. O. 48, Department of Missouri*, May 1, 1888.

RAFFERTY, OGDEN, *First Lieutenant and Assistant Surgeon* (recently appointed).—Ordered for duty at Fort Clark, Texas.—*S. O. 98, A. G. O.*, April 28, 1888.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING MAY 5, 1888.

BAILHACHE, P. H., *Surgeon*.—Ordered to proceed to New York, N. Y., for temporary duty, May 1, 1888.

HUTTON, W. H. H., *Surgeon*.—Detailed as President of the Board to report as to the Quarantine establishment at North Chandeleur Island, Gulf of Mexico, May 4, 1888.

WYMAN, WALTER, *Surgeon*.—Granted leave of absence for fourteen days, May 4, 1888.

STONER, G. W., *Surgeon*.—Detailed as Chairman of the Board for the Physical Examination of Candidates for Appointment and Promotion, Revenue Marine Service, May 5, 1888.

MEAD, F. W., *Passed Assistant Surgeon*.—Detailed as Recorder of the Board for the Physical Examination of Candidates for Appointment and Promotion, Revenue Marine Service, May 4, 1888.

CARTER, H. R., *Passed Assistant Surgeon*.—Detailed as Recorder of the Board to report as to the Quarantine establishment at North Chandeleur Island, Gulf of Mexico, May 4, 1888.

DEVAN, S. C., *Passed Assistant Surgeon*.—Relieved from duty at Sapelo Quarantine; ordered to assume charge of the Service at Savannah, Ga., May 3, 1888.

WHITE, J. H., *Passed Assistant Surgeon*.—Relieved from duty at Savannah, Ga.; ordered to assume charge of Sapelo Quarantine Station, May 3, 1888.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LII. SATURDAY, MAY 19, 1888. NO. 20.

AMERICAN MEDICAL ASSOCIATION.

THIRTY-NINTH ANNUAL MEETING, CINCINNATI, 1888.

THE ADDRESS IN MEDICINE.

Delivered May 9th.

BY ROBERTS BARTHOLOW, M.D., LL.D.,

PROFESSOR OF MATERIA MEDICA, GENERAL THERAPEUTICS AND HYGIENE, IN THE JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA, ETC.

MR. PRESIDENT AND GENTLEMEN: The last International Medical Congress, in some respects, was the most important of the series. In the discussion of those great topics included within the domain of state or preventive medicine, matters of high interest for all educated people, of the greatest importance to the well-being of society, and that exhibit in the clearest manner the disinterested benevolence of the medical profession, were fully considered. To an unprejudiced observer it would seem that matters of such high interest would receive respectful attention, and such practical benevolence be gratefully appreciated by the great organs of public opinion—the daily newspapers: it must be admitted that it did not prove to be so.

It is a remarkable fact that the proceedings of the Congress were revealed to the universal public in a manner that is not too strongly characterized by the word *flippant*. In explanation of this phenomenon it was said that such is the usual attitude of the press toward the medical profession; that these representatives of current opinion do not take the profession "seriously," but rather view the men, and the work of the Congress, as a comedy performance, to be criticised and laughed over on the same lines. If the great metropolitan dailies stood alone in this attitude, it were the less surprising; but, unfortunately, others participate. No thoughtful observer can have failed to see that such is the disposition of the press throughout the country toward all medical organizations. The same position is assumed by a certain element in American society that delights to be considered "*cultured*." By these, a physician is a "medico," and the art and science as a profession or business, is no higher esteemed than such shows as Barnum's woolly-horse, or Chang the Chinese giant. Recently at a meeting of a medical jurisprudence society, several members, scientific men, questioned the accuracy of some statements made by the author of a paper who is connected officially with the Coroner's office. For thus presuming to question an official, they were sharply criticised by the Prosecuting Attorney, who happened to be present, and he also chided them in a manner befitting a pedagogue to his naughty boys, rather than members of a scientific body.

The causes of this state of things are not far to seek. Every one here present must be familiar with them. I purpose only to consider those which have to do with the therapeutic art—the most important.

Not a little of the ignorance, the crudities, the vague theories of the eighteenth century still linger in the nineteenth century near its close. It is yet understood by many that the therapeutic art is based on some *ism* or dogma. "Allopath" and "homœopath" are still bandied about as having vital power, when they were long since relegated to the lumber-room of the past by modern science. We yet hear of "new school" and "old school," as if notions brought out near the close of the last century, compounded of the vagaries of Hahnemann and the mysticism of Mesmer, could still continue guides to practice. The contentions of so-called "schools," the noisy demonstrations of the Thompsonians, and eclectics, and physio-medicals; the rabid water-cure, and the innumerable special cures, have produced in the popular mind a distrust of all systems.

The cry of "new school" has proved the most sympathetic; but the attractive sugar pellets, and tasteless liquids, carry with them their own destruction, for, in the deeper consciousness of men, lies the fatal objection that great results are not to be accomplished by such slender means. Hence, left to its own course, homœopathy has practically died out on the Continent. On this side of the Ocean it still maintains a certain influence, because of social conditions and prejudices that are only possible in free communities.

The success of such wretched puerilities, such inanities as the homœopathic practice consists of, does more to lower the position of the medical profession than any other cause. The false statistics published as actual fact, accepted as true, and passing unchallenged, are at this moment doing an almost incredible amount of mischief. Two years ago a pamphlet was very widely distributed throughout the West, as a trade document, containing much falsehood in the way of statements of pretended scientific truths, and fictitious statistics, that placed legitimate medicine in a false position, and discredited its practice to a most serious extent. This pamphlet was issued by a St. Louis homœopathic pharmacy, and was written by a Dr. Somers, who had been a professor in the faculty of Iowa University, and it had, therefore, an air of authority that materially contributed to its success. The usual tirade against allopathy—its past errors, and its present uncertainties—occupied much of this pamphlet, but its really effective part consisted in statistics made up out of the whole cloth. These statistics, it is asserted, were obtained from official publications, and gave the results in numbers of the comparative success of homœopathy and allopathy, in the cities of Boston, New York, Philadelphia, and others. It was thus shown by pretended official figures, that homœopathic practice is invariably from 30 to 50 per cent. more successful than allopathic.

What answer can be made to such statements, apparently supported by official figures? I am informed by a physician of the best reputation, living in a large city of the West, that this pamphlet was sent to every householder in a considerable town, that legitimate practice

was in a short time completely destroyed, and every regular physician reduced to extremity. We need not be surprised. How could any physician answer those immutable figures? Those who suffer from the effects of such misrepresentations are clear that an adequate answer should be made, although the profession is averse to medical polemics—for, wherever this lying paper has gone, the regular practitioner is silenced. Here are the official figures—what will you do about it? It remains unanswered, and is yet doing its work efficiently as a trade circular.

When this pamphlet was brought to my notice, I communicated with the official authorities to learn about the source and probable value of these pretended official figures. I expected to discover manipulations which made the figures tell the story that suited the purposes of the St. Louis drug house; but I was amazed to hear that no statistics of this kind exist at all, that a return showing the effect of a system of practice on the mortality rates had never been made, and therefore never published, and hence the figures given in the pamphlet were made out and out. I ascertained on further inquiry that though every aid were given, it would be a matter of infinite difficulty to get such figures, and to assure their accuracy would require an amount of time and trouble that hardly any one could give to such a task.

We cannot but regret that such misrepresentations should go unexposed. No other argument were needed to demonstrate the falseness of a system, maintained by frauds of such a shameless character; but meanwhile the advocates of the system profit by the forbearance of the medical profession in the attitude of maintaining its dignity.

The one remedy for existing ills—and to put the medical profession in its proper attitude as a scientific body—is to improve the art. How can the application of remedial agents be rendered more certain?

As a teacher of therapeutics for many years, I could not fail to observe that the attainments of the profession in respect to the powers of medicines are not as fully developed as they ought to be. They do not have that familiarity with the physiological powers of drugs which the effective use of remedies demands. It thus happens that the highest precision is not attained. Vague notions take the place of scientific accuracy when such has been the progress in this department, that a considerable degree of certainty should be the rule.

It must be admitted that the acquisition of therapeutical skill has been greatly hampered by the complexity of the materials. The barnacles of a century have been accumulating on the framework, and the new knowledge has been thrust into the crevices of old notions until all is made to appear confused and uncertain.

The subject should be divested of its superfluities. The list of preparations given in the *U. S. Pharmacopœia*—our only official authority—can be greatly curtailed with advantage. Remedies long in use and of comparatively little value are overloaded with formulæ. The preparations of iron given by the *Pharmacopœia* are thirty-eight in number, of mercury twenty-five, of rhubarb fifteen, of aloes as many. One-third of these could perform the duty of all. The botanical and pharmaceutical details are such that to master them would require the whole of the time given to the medical studies. If obtained, such knowledge is of small value to physicians: therefore it should be turned over to the pharmacist, to whom it properly belongs.

It needs no argument to show that to accomplish the best results, not only the remedy in its crude form but its constituents must be accurately known. Whenever an active principle is not available, the most concentrated preparations should be prescribed. In an especial degree is it necessary to have complete information regarding the dosage and actions of alkaloids. Let me emphasize in the most positive manner the importance of using the alkaloids and active principles, for by them we have minuteness of dose, singleness of action, and precision of effect.

In these "flabby days," as Mr. Froude entitles the present time, we must pay deference to taste, and secure the administration of a remedy which in a crude form may be rejected.

Under the name "*dosimètrique*" a system of therapeutics has been brought forward within a few years past, in which the point of departure is the exclusive use of the alkaloids and active principles made into granules. I will not enter into the theoretical notions on which Burggraeve bases his system. Dr. von Penterghem has done me the honor to send me his volume, which contains the dosimetric system fully elaborated, but I do not find that there is any truth which can be considered new, except the form of the medicament. Furthermore, their work is superficial. Dosimetric practitioners are imperfectly acquainted with the physiological action of remedies—their point of departure. This so-called system is, therefore, little more than a name which it was hoped, there is reason to believe, might play the *rôle* once the fortune of homœopathy.

That to attain to any degree of accuracy the administration of active principles is necessary is obvious enough. Crude drugs have a varying constitution due to climate, character of season, mode of manipulation, and other accidents. A notable illustration of this truth is afforded us in the composition of Pilocarpus. It contains two active principles: one *Pilocarpine* constant in form and powers; another *Jaborine* variable. The proportion of jaborine found in different lots of the drug pilocarpus varies one from another, and the process of separating the alkaloid also affects the quantity. Now as jaborine is an analogue of atropine, and therefore opposed in the entirety of its actions to pilocarpine, it is clear that the crude drug must be uncertain in its effects and one specimen vary from another in the most radical manner. In this way only can be explained the conflicts of observation first noted; for the alkaloid pilocarpine acts in a uniform manner, and must continue to do so. To obtain the desired results it is clear that the alkaloid and not the crude drug must be used.

There are many illustrations of the same truth: for example, in the actions of cinchona and quinine, opium and morphine, nux vomica and strychnine, etc.

There can be but one basis for the administration of remedies. That must be a true, exact, and intimate knowledge of the manner in which they act on the tissues and organs of the body. This knowledge, as it now stands only in part developed, is large, somewhat complicated, but quite available, and will richly compensate all who will master its spirit and form.

It is within a comparatively short period that the study of the physiological action of remedies has been the

basis of a scientific therapeutics. The opening of the present century marked the very beginning of this movement, which, even now, is far from maturity. We owe to the genius of Magendie, seconded by the labors of Bichat, the fundamental principles, and to Bernard their practical execution. It is a curious fact, that when the foundations of physiological therapeutics were being laid, Hahnemann was developing his notion of the spiritual essence in medicines under the tuition of Mesmer, who, at that time, was firing the heart of female Paris with his magnetic force. To-day, under the title of "New School Medicine," we have this eighteenth century mysticism unchanged and unchanging, whilst legitimate medicine has been continuously developing, under the inspiration of all forms of physical science. To admit that homœopathy had any influence in the shaping of scientific medicine, is to admit its right to a hearing. It had nothing to do with the new forms scientific knowledge was taking, especially not with biology. Physiological therapeutics being the form the art of cure must, of necessity, assume, is there any law or rule which may serve as a guide to practical use? Of this there can be no doubt. The law of antagonism of action is such a guide within its proper range. By this is meant such a balancing of effects that the morbid action ceases. A capital illustration of the action, and of its consequences, is afforded us in the use of amyl nitrite in the relief of that form of angina pectoris with high tension of the vessels, and of fibroid kidney by the use of nitro-glycerine. Here tissue changes are held in check, and ultimately removed, by remedies that oppose the morbid action, or that maintain a balance of effects until the lesions no longer exist.

Besides the antagonism that is direct, there is an antagonism that is similar. That a remedy which has a selective action on any tissue will have a curative action in the diseases of that tissue, is a proposition that is generally true. If the therapeutic action is similar to the morbid, the curative effect is in inverse proportion to the closeness of the correspondence.

If there be similarity of action merely, the curative effect is trivial or is entirely wanting. To illustrate: Pilocarpus is the most powerful sudorific we possess; but it is the least effective agent in the arrest of sweating. On the other hand, atropine is the most effective, and this, as all the world knows, dries the skin by stopping the action of the sudoriparous glands. If we place together the physiological agents now used to arrest sweating, we find that they are powerful in proportion to the degree in which they lessen the functional activity of the sweat-glands. Thus we have atropine, picrotoxin, strychnine, and pilocarpine. Such a fact is conclusive against the theory and practice of homœopathy.

Next to the action of physiological antagonism as a means of securing accuracy in our therapeutical methods, must be placed the use of the physical forces. The important one, and that only to which I can allude, is electricity.

Infinite harm has been done to this subject by specialism. It is not yet divorced from charlatanry of the worst sort—the pseudo-scientific. The most serious embarrassment in assigning electricity to its rightful place in our Materia Medica, is the complexity of the subject. Unfortunately, no man can use the agent rightly who is unacquainted with its physics and physiology. Within the sphere of its curative action, it is simply unrivalled. That this strong statement is not universally accepted, is due to the fact that this force is not sufficiently studied, and not appreciated because its powers are not utilized. Professional scepticism, added to the ill-repute which comes of inveterate quackery, acts in turn on the minds of patients, and thus prejudice is engendered that constantly interferes with the proper development of the science.

Notwithstanding the scepticism, or the positive unbelief, there are two facts that cannot be explained away or denied—for they rest on the immutable basis of physical truth.

The first fact is, the power of galvanism to affect the circulation.

The second fact is, electrolysis, or electrolytic decomposition.

Late researches have shown that a moderate galvanic current increases the vermicular action of the vessels and thus increases the blood supply to a part, and the activity of the function of nutrition. On the other hand, strong currents tetanize the vessels and thus lessen the amount of blood passing to a part, diminishing congestion. The same laws hold good of the faradic current if the parts to be acted on are so situated that the electrodes come in contact with the tissues.

As respects electrolysis, scepticism has no ground of opposition. The same laws that regulate polar action in electrolytic decomposition, must be equally applicable within the body as without, the same substances being acted on. The action of the electrical current on the vessels, the electrolytic decomposition of materials that can be thus acted on, have brought about results not hitherto attainable. Merely as indicating results now of daily procuring, and which, no doubt, receive full consideration in the Sections, I mention only the remarkable effects had in the treatment of pelvic congestion, inflammation and its products, of stricture of the urethra, and similar lesions. Again, in affections of the trophic system, cutaneous diseases, etc., quite a different aspect has been given them by electrical treatment. Nor should I fail to mention the quite remarkable results which have been lately achieved by the combined currents—galvano-faradic.

Will my brethren who practise the obstetric art permit me to ask why post-partum hemorrhage shall not be promptly arrested by the faradic current, instead of by ergot, friction of the abdominal walls, and other reflex stimuli intended to secure uterine contractions?

There is a vast field needing cultivation in the application of hygiene to therapeutics. The comparatively new method of the dietetic treatment of disease offers us remedial agencies which certainly approximate to exactness in method, and surety in result. Time and the occasion permit me only to offer the merest hints for your serious and wise consideration.

THE CARTWRIGHT LECTURES.

ON THE GENERAL PATHOLOGY OF FEVER.

Delivered before the Association of the Alumni of the College of Physicians and Surgeons, New York, April 12, 1888.

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LECTURE III.

THE ETIOLOGY OF FEVER.

WE considered in the last lecture the experimental evidence concerning the effects of increased bodily tem-

perature. An advantage of the experimental over the clinical method of investigating this subject is that it enables us to study the effects of heat upon the whole body and its various functions without the intervention of disturbing factors, such as infection, which complicate the clinical analysis of febrile phenomena with reference to this question.

We found that animals may be kept at high febrile temperatures for at least three weeks without manifesting any serious symptoms. The only functional disturbances which could be attributed directly to the influence of the elevated temperature were increased frequency of respiration and quickened pulse. The rapid respiration was found to be due partly to stimulation of the skin by external heat and by the warmed blood, and partly to the action of the warmed blood on the respiratory centres. The quickened pulse could be positively referred to the effect of the warmer blood upon the heart itself. No definite relation could be established between the variations of arterial tension which occur in fever and the height of the temperature.

Although the experiments narrated showed that prolonged high temperature is an element in the causation of fatty degeneration of the heart, they also indicated that other factors, such as infection, are concerned in the production of this lesion. Moreover, experimental evidence was found in support of clinical facts showing that this alteration may exist without serious interference with the functions of the heart, so that the conclusion seems justified that failure of the heart's power in fever is less an effect of high temperature than of other concomitant conditions.

Of the other disturbances in fever we learned that the increased consumption of tissue can be explained only in relatively small part by the elevation of temperature. The lessened perspiration, the renal disorders, and the digestive disturbances (with the possible exception of constipation) are referable also chiefly to other causes than the increased temperature. Both experimental and clinical observations strongly support the view now widely accepted that the disturbances of the sensorium which constitute so prominent a part of the group of so-called typhoid symptoms, are dependent in far higher degree upon infection or intoxication than upon the heightened temperature.

Although no attempt was made to analyze in detail the clinical evidence relating to the effects of high temperature, attention was called to the fact that the absence of all serious symptoms in many cases of relapsing fever, and in the so-called aseptic fevers in spite of prolonged high temperatures, strongly support the conclusions derived from the experimental study of the effects of heat upon man and animals. Even in fevers, such as typhoid fever and pneumonia, where the height of the temperature is undoubtedly a most important index of the severity of the disease, there exists no such parallelism between the temperature and the nature and the severity of the other symptoms as we should expect if these symptoms were caused by the increased heat of the body.

It was emphasized that the results of experimental investigations should not be permitted to control the treatment of fevers, more particularly the use of so-called antipyretic agents. These agents, whether hydrotherapeutic or medicinal, influence, as is well known, many functions besides reducing the temperature. I need only refer to the powerful influence of cold baths upon the circulation and the nervous system, and to the action of antipyrin and other antithermic drugs upon the nervous system.

Reasons were given for assigning to hyperpyrexia and insolation a position separate from other febrile conditions in the discussion as to the effects of elevated temperature.

Before leaving this subject of the effects of increased temperature, I wish to call attention to one consideration which should perhaps influence our opinion on this much disputed question. Is it a matter of indifference, so far as the effects of febrile temperatures are concerned, in what manner the increase of temperature is brought about? We have seen that heat regulation, heat production, and heat loss are disturbed in fever; but, as experience shows, not always in the same manner or the same degree. In one case the incoördination of the regulating mechanism may be most apparent, the temperature fluctuating strangely up and down; in another case the heat-producing processes are excited to the utmost; and in another the circulatory changes in the skin, the vasomotor disturbances, are the most prominent phenomena. Now this varying interplay of the factors which cause febrile rise of temperature doubtless corresponds to varying conditions of innervation, of structure and of function of certain tissues of the body. May we not reasonably suppose that these varying conditions of the tissues directly associated with the rise of temperature may influence their tolerance of increased body heat? We have not the experimental or the clinical data which would enable us to give a definite answer to the question here propounded, and it would lead me too far from the theme of the present lecture to attempt to sift the equivocal evidence which might be gathered. I suggest this question, however, as one worthy of more attention than it has hitherto received.

I wish now to invite your attention to some considerations concerning the etiology of fever. In this era, when etiological studies occupy the foremost rank in medical science, it will naturally be expected that a discussion of the general pathology of fever, even though it does not aim at completeness, will not leave wholly untouched the etiological aspect of the subject.

The general etiology of fever relates mainly to a consideration of the agents producing fever, the so-called pyrogenic substances. It is, moreover, only certain general characters of these agents which can be properly considered here. Most of the questions which at present engage so prominently the attention of physicians concerning the specific causes of individual fevers belong, of course, to the special etiology of fevers, and therefore do not lie within the limits of our subject. But even with these limitations we cannot in treating of the general etiology of fever consider the febrile processes so much in the abstract as we have done hitherto. We must come into closer contact with the individual forms of fever.

At the start it should be said that probably in no instance are we acquainted with the actual substance or substances upon which the febrile disorder of animal heat immediately and directly depends. We deal here, as elsewhere in medicine, not with direct but with remote causes. But in no department of etiology have we ad-

vanced nearer the proximate causes than in many of the infectious fevers. To be convinced of the immense progress which has been brought about by the etiological study of fevers, let one glance over some of the older books on fevers, such as Percy's or Selle's,[1] with their endless divisions into symptomatic genera and species, and their barren speculations. Percy, for instance, describes no less than one hundred and fifteen different kinds of fever.

In all ages it has been customary to divide fevers into two great groups, viz.: those which are secondary to some local cause, usually an inflammation, and those which cannot be explained by the presence of any local lesion. The explanation of the symptomatic seemed so much clearer than that of the essential fevers that attempts have repeatedly been made to place all fevers in the symptomatic group. It is a curious fact that the two methods which have been of the greatest service in the study of fevers, each, when first introduced, led to an entire misconception of the nature of fever. Boerhaave, who was the first to make any extensive use of the thermometer at the bedside, supposed that this instrument indicated a reduction of the bodily temperature during the febrile chill. He therefore taught that increased frequency of the pulse and not the elevation of temperature is the constant and essential symptom of fever. If we except de Haen's correction, which never became widely known, it was not until the middle of the present century that Boerhaave's error was overthrown. A no less serious misconception sprang from the study of the pathological anatomy of fevers in France during the early part of the present century. The exaggerated ideas of the immediate followers of Bichat as to what can be accomplished by pathological anatomy led them to the belief, for a long time widely accepted, that there is no such thing as an essential fever, that all fevers are symptomatic of some local disease. This error of Broussais, one of the most influential and eloquent medical teachers of this century, is plainly traceable partly to the fact that his autopsies were chiefly of typhoid fever, and partly to the belief that the lesions found at the autopsy suffice to explain all of the manifestations of the disease during life. But we need not stop to trace the fate of the various attempts to overthrow the doctrine of essential fevers. I have mentioned one attempt chiefly on account of the suggestive lessons it conveys rather than from a desire to enter into historical details which I have hitherto purposely avoided.

The division of fevers into symptomatic and essential fevers is one of undoubted practical utility, and is not likely to be abandoned. But it cannot truthfully be said that this popular classification has been of much assistance in advancing our knowledge. Close inspection shows that the boundary lines between the two groups of fevers are vague and shadowy. Probably no one any longer believes that traumatic fever, the principal type of the symptomatic group, is due to increased production of heat in the seat of inflammation, which, acting like a furnace, was once thought to warm the whole organism, or to the irritation of nerves connected with the inflamed region. The opinion of Billroth and of Weber is now generally accepted, that traumatic fevers are caused by the absorption of pyrogenic substances from the inflamed district. Symptomatic fevers as well as essential fevers, therefore, are dependent upon the presence within the blood of fever-producing agents. Many essential fevers, moreover, resemble the symptomatic ones in the existence of inflammation, or necrosis at the portal where there is reason to believe that the pyrogenic agents gain access to the general circulation. A distinction in these cases cannot be based on the ground that in symptomatic fevers only chemical substances, although possibly the products of bacteria, enter the circulation, and in essential fevers microörganisms invade the blood, for such a distinction would place cholera and possibly tetanus and typhoid fever among the symptomatic fevers. These considerations show how vague and unsatisfactory are the distinctions between symptomatic and essential fevers. Still, similar criticisms can be made of many of our artificial classifications which nature is under no compact to observe, and we should undoubtedly be put to great inconvenience if we attempted to dispense with the epithets symptomatic and essential as applicable to different forms of fever. There are, however, other points of view which seem to me more fruitful in the study of the etiology of fever than those embodied in these distinctions. I refer to the differences in the nature of fever-producing agents, concerning which our knowledge, although still very imperfect, has been materially increased within recent years. And here again we are greatly indebted to the results of experiments upon animals.

Much light has been shed upon the causes of a certain class of fevers by a series of experiments, which received their impulse from the important studies of Alexander Schmidt and his pupils upon the physiology of the blood. A particular direction was given to these experiments by the often repeated observation that fever and other injurious effects may follow the transfusion of blood, especially when the blood of one species of animal is transfused into an animal of another species. In order to test the supposition that these bad symptoms are due to an excess of fibrin ferment Köhler[1] injected into the vessels of animals blood made rich in fibrin ferment and fibrino-plastic substance, and found that this blood when injected in large amount into the jugular vein causes sudden death by rapid coagulation of the blood in the right heart and pulmonary arteries, but when injected in smaller amount or in a different manner produces a typical febrile attack bearing a close resemblance to that following the injection of putrid fluids. Angerer[2] then found that a similar fever, although less intense and more gradual in its development, may be produced by the injection of blood into the peritoneal cavity or the subcutaneous tissue, or even by an extravasation of blood. Although in these experiments it was believed that fibrin ferment is the pyrogenic agent, Edelberg[3] was the first to produce fever and other symptoms of intoxication by the injection of this ferment isolated according to Schmidt's method.

[1] Percy: Die gesammte Fieberlehre, Pesth, 1820. The original is in French.

Selle: Rudimenta Pyretologiæ Methodicæ, Berolini, 1773.

[1] Köhler: Ueber Thrombose und Transfusion, u. s. w. Inaug. Diss., Dorpat, 1877.

[2] Angerer: Klin. u. Exp. Untersuch. üb. d. Resorption v. Blutextravasate, Würzburg, 1879.

[3] Edelberg: Arch. f. exp. Path. u. Pharm., Bd. xii.

In the light of these experiments it was to be expected that other ferments would be examined with reference to their pyrogenic power. Schmiedeberg[1] discovered that injections of histozyme into the blood of dogs produced high fever associated with general illness, and particularly with diarrhœa. The ferment to which Schmiedeberg has given the name histozyme he believes to be present normally in small amount in the body, and to be concerned in the dissociation of the nitrogenous constituents of the tissues. He concludes from his experiments that an excessive accumulation in the body of this normal ferment gives rise to fever with increased metamorphosis of nitrogenous materials. Schmiedeberg thinks it probable that the fibrin-ferment solutions employed by Edelberg in his experiments contained also histozyme, and that the pyrexia was due to the latter substance.

Following these observations concerning the pyrogenic power of fibrin-ferment and histozyme comes the discovery of von Bergmann and Angerer[2] that injection of pepsin and of trypsin into the blood of dogs causes a well-marked fever with characters like those of the other ferment intoxications described. A valuable calorimetrical study of pepsin and trypsin fevers has been made by Wood, Reichert, and Hare.[3] These authors, as well as Ott,[4] have demonstrated that it is not the pepsin and the trypsin ferments themselves which constitute the pyrogenic agents, but some contaminating substance, which seems to be a peptone. That peptones artificially prepared contain poisonous principles has been known for some time, and Brieger[5] has succeeded in isolating a crystallizable poisonous ptomaine, called pepto-toxin, from commercial peptone and from that formed by the artificial digestion of fibrin. This ptomaine, however, is not identical with the pyrogenic agent found by Ott and by Wood and his colleagues in commercial pepsin. To this list of pyrogenic substances obtained from impure ferments may be added leucin, and, according to Ott, papayotin and neurin which produce marked fever when injected into the blood in small quantity. The substance sold under the name of papoid possesses marked pyrogenic power when its filtered aqueous solution is injected into the blood. This substance contains principles belonging to the peptone or albumose group. Dr. Mall, Fellow in Pathology at the Johns Hopkins University, has isolated from commercial papoid a bacillus, which in pure cultures exerts a powerful peptonizing action on fibrin and on connective and elastic tissues. The bacillus itself is not pathogenic, but an albumose or some similar substance produced by its activity, has pyrogenic power when injected into the blood.

It does not appear that any one has actually isolated the pyrexial agent from the various ferments employed in these experiments. Certainly no such agent has been obtained in a crystalline form, which is the test of its purity, if we except Brieger's pepto-toxin, the pyrogenic capacity of which has not been established. It has been alleged that the fever-producing agent is the same in all these ferment intoxications, but this has not been proven nor does it seem probable.

[1] Schmiedeberg: Ibid., Bd. xiv.

[2] Von Bergmann u. Angerer: D. Verhältniss d. Fermentintoxication. Festschrift, Würburger Universität, 1882, i. 135.

[3] Wood, Reichert, and Hare: Therapeutic Gazette, 1886.

[4] Ott: Journal of Physiology, vol. viii.

[5] Brieger: Ueber Ptomaine, Berlin, 1885.

On better grounds it has been urged by von Bergmann and Angerer, that all of the substances in the group of pyrexial agents now under consideration, cause fever by producing the same change in the blood. These authors claim that this change is the formation in the circulating blood of an excessive amount of fibrin ferment, which leads either to coagulation or to stasis in the capillaries, particularly those of the lungs and of the intestines. One of the main arguments for this view is the fall of blood pressure which von Bergmann and Angerer observed after injections of pepsin and of pancreatin, but this fall can be explained in other ways than by supposing that the pulmonary capillaries are occluded, and, moreover, Wood, Reichert, and Hare find that the blood pressure often rises in the course of pepsin fever. It does not seem to me that we are any more able to explain in exactly what manner the pyrogenic substances act in this class of fevers than in other fevers. The idea, however, that the liberation of fibrin ferment in abnormal quantity is capable of causing fever, finds support not only in experiments which have been mentioned, but also in the fact that injections of hæmoglobin solutions, and of large quantities of water into the blood, produce fever.

But you, perhaps, by this time have asked yourselves what bearing all of these experiments with various pyrogenic substances have upon the etiology of human fevers. They have, in my judgment, an important bearing on this subject. However obscure may be the explanation of the mode of action of these substances, however doubtful may be their exact chemical composition, they have certain common characteristics which are calculated to shed light upon the causation of some obscure febrile disorders of human beings. In the first place, the members of this group of pyrogenic substances, if not identical with certain physiological ferments, are readily produced by them, quite independently of the action of bacteria or other microörganisms. In the second place, some of these substances are present normally in small amount in the body, and if their elimination is impeded, or their formation is excessive, there is reason to believe that they become efficient causes of fever. In the third place, these pyrogenic substances may be produced, again without the action of bacteria, in extravasated blood, or by the abnormal disintegration of tissues, and if they are absorbed from these sources in such a condition, or in so large an amount that nature cannot render them harmless, they are capable of producing fever. It is customary to call the morbid condition produced by the absorption of these substances, ferment intoxication in analogy with the term putrid intoxication, applied to the diseases caused by the absorption of the products of putrefactive bacteria. The term ferment intoxication seems to me to imply more than our knowledge warrants, but it is not of much use to contend against names which have gained currency. It is probable that some of the pyrogenic agents in this group belong to the class of leucomaines, but our present information regarding these bodies does not justify any positive statements on this point.

Although the etiology of individual fevers does not belong to our subject, I cannot forbear calling your attention to certain febrile conditions which seem to be produced by the accumulation of substances that are either normal constituents of the body or are the result of chemical processes, differing but little from physiological ones.

To this category probably belongs the so-called aseptic fever, first described by Genzmer and Volkmann.[1] These surgeons have established the fact that there are traumatic fevers not caused by the absorption of septic material, and that severe injuries and wounds which pursue an entirely aseptic course, are not infrequently associated with considerable elevation of temperature. This aseptic fever is usually to be observed with extensive wounds or injuries in which there is much lacerated tissue or extravasated blood to be disintegrated and absorbed. It occurs not only with wounds correctly treated by antiseptic methods, but also with subcutaneous injuries, particularly fractures of the large bones, where there can be no suspicion of the action of bacteria. Aseptic traumatic fever differs by such marked characteristics from septic fever, that there can be no doubt that the two types of fever are etiologically distinct. Aseptic fever has no prognostic significance; its only symptoms are the elevation of the temperature, which may mount to 104° (40° C.), or even 105.8° (41° C.), and the increased frequency of the pulse. The entire absence of all the intoxication symptoms of septic and infectious fevers, such as the benumbed sensorium, the dry tongue and skin, the lessened secretion of urine, I have already referred to in confirmation of the belief that these symptoms are not dependent upon the rise of temperature. Genzmer and Volkmann assign as the cause of aseptic traumatic fever, the absorption of substances resulting from the disintegration of the wounded tissues and of the extravasated blood, and state that these substances probably do not differ markedly from those produced by physiological tissue metamorphosis. This explanation certainly has received decided support by the experiments which I have described in this lecture, a large part of which have been performed since the publication of Genzmer and Volkmann's article. It has been suggested that aseptic traumatic fever is a reflex neurosis, and this suggestion cannot be absolutely rejected as a possible explanation, but for various reasons, which cannot here receive further consideration, the usually accepted explanation is the more probable one.

An instructive case of ferment intoxication has been reported by Cramer.[2] There existed in a young woman a cyst, the size of a goose's egg, between the fibres of the semitendinosus muscle. The cyst was developed from a cavernous angioma, and was filled with dark fluid blood. The patient had had fever for almost two years up to the day of the operation. The cause of the fever could not be discovered. Immediately after the removal of the cyst the fever stopped and did not return. In this case the cavernous structure of the cyst wall accounts for the ease with which we must suppose a considerable quantity of the pyrogenic substance was continuously absorbed from the bloody contents of the cyst. The results of Angerer's experiments, already mentioned, enable us to explain the source of the fever in this case.

Another instance may be cited in which fever is probably to be explained by the accumulation within the body of products of normal metabolism. More or less fever appears to be a constant accompaniment of the agonizing method of treatment known as the Schroth cure. In this treatment the patient is kept for a number of successive days on dry food with scarcely any fluids. Both Bartels and Jürgensen,[1] who have investigated the nutritive changes of individuals under this treatment, believe that the body becomes so poor in water that some of the products of regressive metamorphosis cannot be carried out of the system. This certainly seems very probable, and, if true, it affords in the light of recent experiments an explanation of the accompanying fever.

I believe that good reasons can be adduced in support of the opinion that the febrile conditions sometimes associated with leucocythæmia, profound anæmias, and chlorosis belong to the group of fevers we are now considering. It is probable that some of the obscure ephemeral fevers are also to be included here. But to consider these febrile disorders in detail would lead us into the domain of special etiology upon which we have already perhaps encroached too far. My purpose has been to bring before your attention only a few clinical examples in illustration of the experimental results.

I think that you will agree with me in the conclusion that experimental and clinical evidence justify us in recognizing as a distinct group of pyrogenic agents, substances which have no necessary connection with microorganisms, and which are either not foreign to the healthy organism or are readily formed by unorganized ferments from normal or abnormal constituents of the body. These substances may be described as homologous in distinction from the heterologous agents concerned in the production of septic and infectious fevers.

A class of pyrogenic agents of far greater clinical importance than those previously considered is formed by the products of microörganisms which in themselves are not pathogenic. A considerable number of bacteria, which when inoculated in pure culture into the body are not capable of further invasion or of multiplication, produce in culture fluids and in dead animal or vegetable material poisonous substances often of great virulence. Exception may be taken to the description of these organisms as non-pathogenic, inasmuch as the products of their activity are poisonous, but the epithet pathogenic is usually assigned by bacteriologists only to such microorganisms as are capable of multiplication within the body. If we called all of the microörganisms pathogenic which produce poisonous ptomaines we should have to include in this category a far larger number of the known species of bacteria than has hitherto been customary.

The best known and most important of the fevers produced by chemical products of saprophytic bacteria are those grouped under the name putrid intoxication. Until the introduction of the modern era in bacteriology by Koch nearly all of the experimental work on the etiology of fevers related to the causation of the septic and putrid fevers. It is instructive with our present knowledge to follow the experiments on this subject from the period of Gaspard, Magendie, and Sedillot up to recent times. What light has been shed upon the mass of contradictory and perplexing results of experiments with putrid fluids by the recent chemical and biological studies of putrefactive processes? Some of the putrid substances experimented with undoubtedly contained parasitic microorganisms, and others contained only obligatory saprophytes. Some were rich in poisonous ptomaines, and

[1] Genzmer and Volkmann: Volkmann's Sammlung, No. 121.

[2] Cramer: Verhandl. d. Deutschen Gesellschaft f. Chirurgie, 13th Congress, 1884.

[1] Jürgensen: Deutsches Arch. f. klin. Med., Bd. i.

others were nearly devoid of them. The whole doctrine of the parasitic nature of infectious fevers seems to have hinged in the minds of some upon the determination of the question whether septic and putrid fevers are produced by the absorption of chemical substances, or by the invasion of pathogenic bacteria. The ideas concerning putrid intoxication dominated at one time the whole field of fever etiology, and were applied not only to septicæmia but to typhoid fever, typhus fever, yellow fever—in fact, to nearly all infectious fevers. Nor have the echoes of this period even now entirely died out.

Panum was the first to isolate from putrid materials some chemical substance or substances in tolerable purity, certainly free from bacteria. This substance, when injected into animals, produced symptoms of putrid intoxication. Subsequently, von Bergmann and Schmiedeberg isolated from putrefying yeast a poisonous crystalline substance, their celebrated sepsin. For a time the opinion prevailed that this sepsin is the source of all putrid intoxications. Thanks to the investigations of Nencki and others, and particularly of Brieger, we now know that many alkaloidal substances can be separated from putrefying materials. Some of these so-called cadaveric alkaloids or ptomaines are poisonous, fever-producing, others are harmless. There is no reason to suppose that the list of the ptomaines of putrefaction has been exhausted, nor is it necessary to believe that all of the poisonous constituents of putrefying materials are of an alkaloidal nature.

Most of the bacteria concerned in ordinary putrefactive processes are purely saprophytic. They are incapable of multiplication in the living animal tissues. In a mixture of putrefactive bacteria it is not, however, uncommon to find genuine pathogenic or parasitic bacteria. It was from such sources that the bacilli of mouse septicæmia and of rabbit septicæmia (Koch) were obtained. The bacillus of malignant œdema is also often found in the early stages of post-mortem decomposition.

There is, of course, no doubt that the absorption of the chemical products of putrefaction may produce fever with septic symptoms, quite independently of the penetration and multiplication within living tissues of bacteria.

Here belong certain cases usually described as septic, in which fever and other bad symptoms subside upon the thorough cleansing and disinfection of a foul wound, or of a puerperal uterus. The majority of cases of septicæmia are not to be included here, for they depend upon the invasion of pathogenic bacteria. But, excluding the cases of genuine septicæmia, there remain the putrid intoxications which result from the absorption of poisonous substances produced in necrotic or disintegrating tissues, or exudations, or extravasated blood, by the action of purely saprophytic bacteria. The ideas which I have expressed on this subject are now so generally admitted that they require no further elucidation.

It is probable that fever, with symptoms of intoxication, although generally of a much milder nature than in the class of cases just considered, may be produced by abnormal fermentations and putrefactions caused by saprophytic bacteria in the alimentary canal. But here the essential morbid conditions seem to be abnormalities in the gastric and intestinal contents, due partly to the character of the ingesta, but chiefly to alterations of the digestive juices. Fermentative and putrefactive bacteria are normally present in the intestinal canal, and have abundant opportunities to gain access to this situation. The number, however, which can multiply and thrive there is quite limited, for under normal conditions, according to Escherich, only such bacteria can multiply to any extent in the intestinal canal as are capable of growing with little or no oxygen, and of deriving their nourishment from the anaërobic fermentation of the food supplied to them in this situation. Suitable conditions for the excessive multiplication of putrefactive or fermentative bacteria may, however, be furnished by abnormalities of the gastric or intestinal contents.

Of a far more serious nature are the putrid or ptomaine intoxications which result from the ingestion of substances which have undergone outside of the body putrefaction, or changes which lead to the formation of poisonous ptomaines. To this group of cases belong at least many of the instances of poisoning which have been caused by eating certain kinds of meat, sausage, fish, cheese, etc. In some of these instances poisonous ptomaines have been isolated from the suspected substances, but we know scarcely anything of the microörganisms which are concerned in their production.

It is important to bear in mind that it is not stinking putrefaction alone which gives rise to poisonous products. Brieger has found that such products may be absent in very advanced decomposition, and that in general the most virulent products are formed in the early stages of putrefaction. We know, furthermore, that putrefactions and fermentations differ in the character of their products. There are differences according to the kind of bacteria present, according to the substances decomposed, and according to various other conditions, such as the presence of oxygen, the temperature, etc. This is not the proper occasion to discuss these details.

Enough has been said to prove that we are justified in recognizing as a second class of pyrogenic agents substances which are the products of bacteria in themselves not pathogenic. These pyrogenic agents may be formed on or within the body, or they may be produced outside of the body. I would not by any means have you infer that it has been proven in all of the special examples which I have mentioned, that the bacteria involved are not pathogenic, or capable of multiplication within the living tissues. We have not sufficient knowledge to assert or to deny this in every instance, but I do not think that it is likely exception will be taken to the classification which I have adopted for most of these cases. As has repeatedly been mentioned, our purpose here is not an analysis of individual cases of fever, but an attempt to classify systematically the various pyrogenic substances.

(To be concluded.)

ORIGINAL ARTICLES.

A PRELIMINARY CLINICAL NOTE ON A FEBRILE EXANTHEM (ROSEOLA VACCINA) ACCOMPANYING VACCINATION.

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Out of ten recent vaccinations with bovine points procured from a reliable apothecary, the Philadelphia agent for a New England vaccine company, it has

been my somewhat remarkable experience to encounter two[1] very severe cases of this peculiar and rather rare rash, the course of which was so typical, and the accompanying febrile disturbance so pronounced, that a recital of the histories as a preliminary note may not be uninteresting, prior to presenting a more extended report on similar cases which I have seen, occurring in the practice of other physicians.

Case I.—Henry L., aged four and a half years, a well-grown, strong, hearty boy, was vaccinated on April 20th. On the morning of the eighth day subsequent to vaccination, an irregular, rather large pustule, surrounded by a deep, highly inflammatory areola, occupied the site of vaccination. The whole arm was red, much swollen, and several enlarged, painful glands occupied the axilla of the same side. Slight feverishness had been remarked for twenty-four hours, associated with anorexia, nausea, and a heavily furred tongue. The fever had been decided on the evening before, and was accompanied by delirium, restlessness, and a discrete, small, very slightly raised, rose-colored erythematous rash, which was noticed first on the vaccinated arm, but which on the morning of the eighth day was evenly though lightly distributed on the extremities, face, neck, and trunk. During the early evening of this day I was summoned in alarm by the parents, the fever and rash having greatly increased. The latter now covered the entire body, and had become largely confluent in parts, particularly about the extremities and face, the latter being decidedly tumefied; while the abdomen, chest, back, and neck were very plentifully and regularly spotted with roseolous maculæ and soft, very slightly raised papules, so that no part of the surface of the body was free, though the wrists, flexures of the knees, and ankles were but slightly discolored. Considerable pyrexia was present, judging from the bounding pulse, surface heat, and great thirst. The temperature was not then taken.

At ten P.M., during a restless sleep, a severe general convulsion occurred, lasting nearly an hour, and consisted of alternate tonic and clonic spasms, but especially the former. It was repeated at three on the following (the ninth) morning. The temperature was then 106⅘°, the pulse 160, the extremities cold, and the body surface of a burning heat. The throat was not sore, the glands of the neck not swollen, and no catarrhal symptoms or cough were present. Potassium bromide and a fever mixture of aconite and spirits of nitrous ether were administered, a large enema was given to clean out the bowels, which, however, were said to have been loose on the preceding day. These means, combined with heat to the lower extremities, and constant cold to the head, probably prevented a return of the convulsions, but did not assist materially in lowering the temperature, which at eleven in the morning was 106⅖°, and the pulse 150.

The vaccinated arm was now exceedingly swollen, painful, and angry, while the areola about the pustule had become part of the general redness. The eruption was fully out. It had not the distinctive appearance of the rash of measles, scarlatina, or rötheln, but closely resembled the prodromic exanthem of variola, the *roseola variolosa*, and consisted of a hyperæmic macular erythema, which through the intensity of the systemic disturbance had become largely confluent. At first the maculæ and small papules—the latter of which throughout the disease were soft, and but very slightly raised, and at no time became vesicles or pustules—disappeared on pressure, but soon pressure ceased to efface them, and, about the back, thighs and legs, the diffused rash became decidedly purpuric, leaving, as it faded, subcuticular stains which persisted for a number of days.

On the morning of the tenth day, active antipyretics having been used in the interim, there was a decided improvement in his condition, the temperature was but 101°, the mind was now clear and the tongue less furred. There had been restlessness at intervals through the day and night with slight mental wandering and clonic masticatory spasm, which had ceased as the fever lessened. The urine was examined for albumin during the height of the fever, but with negative results.

I did not have an opportunity of seeing this case again until the fourteenth day following the vaccination. Pyrexia was then absent. The mother thought it had been slightly present on the eleventh day, but she had not observed it since. The rash, on this visit, presented the appearance described above.

Case II.—J. P., a hearty boy of four years, was vaccinated on April 17th. His was a primary vaccination, as, indeed, were all the six cases in which I have met this rash. The course pursued by the vaccination in this, as in Case I., was scarcely typical; no distinct papule had formed on the fourth day, and when seen again on the seventh day, a small irregular foveated vesicle was present, containing opaque lymph and an areola was in process of formation. The arm was then much swollen and so continued for a number of days. The pustule appeared early, was large and somewhat irregular, and the areola present rapidly spread until the whole arm became intensely red. On the evening of the sixth day of the vaccination signs of constitutional disturbance appeared, such as vomiting, furred tongue, anorexia, fever and delirium. These continued, and, on the evening of the seventh day, a rash having the characteristics of that described in Case I., was noticed about the chin, chest and back, which on the eighth day had spread to all parts of the body. It was quite as intense as that of Case I., and, like it, consisted of slightly raised soft papules and large and small roseolous maculæ, which formed, as it progressed, more or less confluent patches in some situations, notably the arms, thighs, nates, and portions of the back. Unlike the rash in Case I., some of the patches at first assumed an irregular

[1] Since writing the above, another case has come to me, making the number three out of seventeen. This one is of a milder type than either of the two described. It is that of an infant aged eight months, in St. Christopher's Hospital.

crescentic shape, somewhat suggestive of measles, but this was very transitory. On the most dependent parts, such as the back, nates, and posterior aspect of the thighs, where the rash later became largely purpuric, the color was, even from the first, decidedly purplish. Coincident with the generalization of the rash the temperature mounted, reaching 105½° at noon of the eighth day; but shortly after its full appearance a rather rapid fall took place, with an amelioration in the other symptoms. At noon on the ninth day, the temperature was 102⅗°, and on the following day the mother believes there was slight, if any, pyrexia present. There were no catarrhal symptoms and no sore throat; the urine was not examined.

Slight desquamation, not observed in Case I., accompanied in some situations, notably the back, the fading of the rash. Purpuric stains persisted on the thighs and nates for some days subsequent to recovery.

Under the title vaccinal eruptions are described a variety of acute eruptive disorders occasionally accompanying vaccinia, few of which can be regarded of special significance, since their presence may be explained more readily by extraneous causes than by any supposed specific action of the vaccine virus. I shall omit special mention at this time of the various local and general vesicular, pustular, urticarial, bullous, erysipelatous, and gangrenous rashes which, from their polymorphous character, irregular period of onset and erratic course, may well be considered to owe their existence to constitutional peculiarities, or to impure lymph,[1] or to accidental inoculation with septic matter at the time of the vaccination, or to the absorption of septic material from the ruptured or unruptured pustule.

We must, I believe, look elsewhere for the cause of the febrile roseola. In the six cases which I saw the incubation period seemed so exact, the characteristics of the eruption, its life history, and the constitutional disturbance were so similar as to indicate the presence of an element of specificity not manifested by the other varieties I have mentioned. Indeed, one cannot but be struck with the resemblance between this rash and the most frequent of the occasionally occurring prodromal exanthems of smallpox, the roseola variolosa, and I am inclined to believe this resemblance is more than superficial. I am in agreement with those who, like Friedinger,[1] look upon this rash, when occurring after vaccination, as an evidence of systemic infection by the vaccinia and that a direct relationship probably exists between it and the contagium of the disease.

Hebra speaks of a local vesicular rash occasionally following variolous or vaccinal inoculation as a part of a general disease, but he regards the roseola vaccinia as the commonest and most significant of the general rashes, and believes it due to the contagious principle causing a lymphangitis which, when it assumes a severe type, may be the cause of extensive cutaneous inflammations, such as erysipelas, cellulitis, abscess, etc. He places the date of appearance of the roseola between the third and the eighteenth day, and considers its duration ephemeral and the constitutional disturbance slight.

Behrend,[2] who gives a succinct, though in parts superficial, account of the various vaccinal eruptions, but whose acquaintance with the form under consideration seems slight, mentions it as appearing on the eighth day in two cases observed by him. In all of the six cases that I saw it appeared between the seventh and the ninth day.[3]

The question may perhaps be asked if this rash is not an accidental accompaniment of the vaccinia, why is it not encountered oftener? and it would be as difficult to answer as the same question regarding the infrequency of the prodromal rashes of variola. The whole subject of vaccinal eruptions merits and would well repay a careful reinvestigation.

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[1] An interesting account has just appeared in the Report of the Royal Bureau of Hygiene, of Berlin, concerning certain eruptions attending successful vaccination with lymph from young kine on the vaccine farm at Eberfeld. The rashes were of the nature of aggravated forms of urticaria, herpes, and contagious impetigo and pemphigus. The constitutional symptoms were so severe that several deaths occurred among children. The cause was at first a mystery, as the farm was in apparent good order and the officials reliable and skilful. By order of the Government three suspected heifers, in which, however, no disease could be discovered, and the various appliances used in inoculation were destroyed, after which no more rashes occurred.

[1] Friedinger: Mittheilungen der Wiener med. Doctoren-Collegium, 1875.

[2] Vaccinal Eruptions, Arch. Derm., Oct. 1881.

[3] In two of my cases at the end of the seventh day; in the third, on the seventh or eighth; in three on the ninth, seen through the kindness of Dr. Wm. M. Angney and Dr Charles Pottberg.

NOTES ON THE EMPLOYMENT OF URETHAN AND OF AMYL HYDRATE IN INSOMNIA.[4]

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AND

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Owing to the demand for some efficient and safe internal remedy in insomnia, the number of hypnotics is constantly assuming larger proportions. We shall enter into no discussion of the merits of some of these. The disadvantages of opium, and the good and bad points of the bromides and of Cannabis Indica, are well understood. Hyoscine

[4] Read before the Philadelphia Neurological Society, January 26, 1888.

has undoubted hypnotic power, as common experience proves; but it can by no means be placed in the list of *pure* hypnotics, and its use is often accompanied by very unpleasant secondary effects; besides being not devoid of danger in dose sufficient to produce sleep. Chloral, though perhaps after all more sure and powerful than any of its cogeners, often has great disadvantages attending its employment. Its hypnotic action is very commonly preceded by delirium, and sometimes this is the only result of its administration; or there may be no effect at all observed. Moreover, cases have been reported by different observers where a single and even small dose has proved fatal; and on account of its depressing action on the heart, respiration, and nervous system generally, it cannot be called a pure hypnotic. Then, too, there exists the danger of the *chloral habit* and of chronic chloral poisoning, if the employment of the drug be long continued. Ward (quoted hy T. M. Lloyd, *Therap. Gazette*, February, 1888) has seen "no untoward result of any nature whatever" follow its use during an experience of fifteen years among the insane, and doubts the existence of such a thing as the "chloral habit." There are others who are inclined to adopt the same view; but those who are sceptical as to the deleterious effect which may follow the continued administration of chloral may find a mass of convincing evidence in the able article by Rehm, in the *Archiv für Psychiatrie*, 1886, Bd. xvii. 36. Although, then, chloral is an invaluable remedy, whose place in some cases cannot be taken by any other drug, the possible dangers attending its use, particularly in a condition of cardiac weakness, render it advisable first to make trial of some substitute for it, if such a substance can be found.

Paraldehyde was recommended by Cervello, in 1882, and has since been used extensively as a hypnotic. It does not affect the heart or respiration in any ordinary dose, and may be given with impunity even when cardiac lesions exist. It is not, however, so powerful as chloral, and possesses certain serious disadvantages. Its dose, mainly, is large, and it has a very unpleasant taste, which remains in the mouth long after the medicine has been swallowed. It may cause vomiting when the stomach is irritable, and in any case it is apt to produce unpleasant eructations, while its disagreeable odor remains on the breath sometimes for days. It is also said to cause great excitement at times, and a recent writer reports two cases where its continued use in large doses induced symptoms resembling those of chronic alcoholism; but this must be a very unusual occurrence. Sommer (quoted in *Therap. Gazette*, August, 1886) reports a case of scarlet injection of the skin, twice occurring after the ingestion of the drug; and Eickholdt (*Ibid.*) has observed cerebral congestion and vasoparalytic symptoms after its prolonged use.

Various other hypnotics have been more recently proposed, such as urethan, amyl hydrate, hypnone, and methylal.

The first two mentioned are receiving the most attention, and we desire here to report our experience with them in a number of cases.

URETHAN.

Urethan, or ethyl carbamide, was first used by Schmiedeberg on animals, and by Jolly on men. It is an ethylic ether of carbaminic acid, with the chemical formula $NH_2CO_2C_2H_2$, and consists of white crystals freely soluble in water, and with no odor and but little taste. It was brought into prominence in 1885, by von Jaksch (*Wiener med. Blatter*, 1885, Nos. 33 and 34), who administered it 110 times in 20 cases. In doses of 7 grains it was an uncertain hypnotic, but when 30 grains were employed he never failed to obtain the desired effect. The amount usually given was 15 grains, which was found sufficient to produce a natural sleep. The drug appeared to be entirely harmless in any medicinal dose, and produced no unpleasant after-effects.

Since von Jaksch's publication urethan has been tried quite extensively. Among the published reports of it may be noticed that of Kräpelin (*Neurolog. Centralbl.*, March 1, 1886), who gave it in doses of 15–45 grains 200 times in 34 cases. He considers it a pure hypnotic, but far inferior to paraldehyde if there has been much excitement, and worthless in delirium tremens. Usually more than 15 grains is required in any case.

Eloy (*L' Union Méd.*, Nos. 36 and 37, 1886) thinks it a powerful agent in doses of 30–60 grains. He has used it in 90 cases.

Scharschmidt (*Therap. Monatsh.*, Sept. 1887) considers it useless in doses of less than 75 grains.

Savage (*Practitioner*, 33, 1887) administered it in doses of 60–120 grains, and says that sleep often comes in one-quarter of an hour. He does not, however, appear to consider the drug at all reliable.

Myrtle (*Brit. Med. Journ.*, February 20, 1886) has seen its good effects in more than 50 cases of insomnia and restlessness from various causes.

Sticker (*Deutsch. med. Wochensch.*, No. 48, 1885) has also obtained favorable results with it, and says the dose may be increased to 60 grains without danger. He further states that too large a dose will sometimes have no effect, when a smaller one will bring sleep.

Bigelow (*Amer. Journ. of Obstet.*, 708, 1887) writes that 15–20 grains give a long, pleasant sleep, and claims that the drug is also an analgesic.

Langovoi (quoted in *Therap. Gazette*, 1887, p. 337) states that the drug is not a powerful hypnotic, and in some cases is ineffectual. It is unreliable but harmless. It may be useful in nervous insomnia and in sleeplessness in the acute fevers.

Ughi (quoted in *Wien. med. Wochensch.*, August 27, 1887) says that doses of even 30–60 grains are inconstant in their hypnotic effects.

Andrews (*Weekly Med. Rev.*, July 30, 1887) has used it in doses of 30 grains in 18 cases of insanity of different forms. About 80 doses in all were given. It produced sleep in about an hour, which lasted through the night. He considers that it has marked hypnotic power, and that it is accompanied by no unpleasant secondary effects.

Sansom (*Valvular Diseases of the Heart*, 1886, 102) considers urethan the most satisfactory agent he has employed as a simple hypnotic in heart diseases. He has found 15 to 20 grains at bedtime induce calm, natural sleep, lasting 5 hours or more, and producing no adverse symptoms.

Carriel (*Therap. Gaz.*, 1888, 101) says of its use in the insane, that it has not produced sleep in 30 grain doses.

Finally, Rottenbiller (*Centralbl. f. Nervenkrankh.*, 1886, No. 10) has given urethan hypodermatically 240 times in 14 cases of mental disorder, and found it ineffectual in amounts less than 30 to 60 grains, while it is not well borne in quantities larger than this. Its action is not very certain. In 8 cases it produced tranquil sleep for 6 to 8 hours, and in 4 others for only 2 to 4 hours. In 1 instance it failed utterly, and paraldehyde was given with success.

In the latter part of 1886 one of us began some trials of the hypnotic power of urethan, and continued them at intervals up to the present time. These cases have now reached 19, and the number of single administrations, certainly over 60. Briefly reported, the cases are as follows:

CASE I.—M., male. Phthisis. Wakeful at night. On October 11th given 15 grains urethan at 9 P. M. Slept from 10.45 to 12. Soon slept again until 4.

CASE II.—H. McN., aged torty, male. Severe bronchitis. Sleeps badly on account of restlessness and cough. Given 15 grains urethan at 9 P. M., on October 8th. Slept better than usual. 10th. 15 grains at 9 last night with no effect. Repeated at 10.20. Soon slept uninterruptedly until 2.30; then with frequent wakings. For 5 nights more a dose of 15 grains was given at about 9, but with no marked result. The patient was unable to say that he slept better than when none was taken.

CASE III.—McG., male, aged thirty. Incipient tuberculosis. Troubled by insomnia, for which morphia has been given. 15 grains urethan administered on night of October 9th, and on succeeding night at 9 P. M. Slept well both times until morning. The patient, however, had slept well on the night of the 8th without any medicine.

CASE IV.—John L., aged thirty-two. Pyopneumothorax. Often sleeps badly. 15 grains urethan at about 9 P. M. every night for 5 nights, beginning October 10th. Slept well through the nights. Urethan then stopped, and patient seemed to sleep just as well.

CASE V.—G., male. Nephritis. Has difficulty in going to sleep; often lies awake until morning. October 9th. 15 grains urethan at 9, no effect. Second dose at 10.30 and slept soon after until 3. 10th. Slept well without medicine, but did not fall asleep so soon.

CASE VI.—T., male. Nephritis; great dyspnœa; orthopnœa. Sleeps but little, and morphia and chloral compound procures but a few hours rest. October 11th. Given 15 grains urethan at 9 last night, and again at 10.50. Slept shortly after until 12.

CASE VII.—Mr. S., aged seventy-two. Emphysema; great dyspnœa. October 14th. 2 doses of urethan, each 15 grains, 2 to 3 hours apart. Thinks it kept him awake. On several other occasions took the drug, sometimes using as much as 60 grains during the night. It sometimes caused nausea, seemed to increase the dyspnœa, and never exercised any hypnotic action.

CASE VIII.—Mrs. C., aged sixty-five. Hemiplegia. Usually very restless at night, and sleeps but little. October 14th. Gave 15 grains urethan at 10. In 20 minutes she was sleeping quietly until 3 A. M. On the next night slept in less than an hour after a similar dose.

CASE IX.—Lizzie P., aged forty-six. Disseminated sclerosis. Always sleeps very poorly. 15 grains urethan at 10 on night of October 13th, produced no effect at all, except some nausea.

CASE X.—Mrs. D., aged sixty-six. Intra-capsular fracture of femur. Tendency to insomnia. October 14th, 15 grains urethan at 10 P. M., had no hypnotic action.

CASE XI.—Mrs. R., aged sixty-nine. Hemiplegia. Usually sleeps very little. October 16th. Took 15 grains urethan at 10 last night. Slept soon and soundly. Woke at 3, but soon slept again. Two days later dose repeated at same hour with equally good results.

CASE XII.—Jacob W., aged eighty-one. Old hernia. Restless at night and sleeps badly. 8 to 10 grains bromide of potash usually helped somewhat. 15 grains urethan twice on the night of October 16th were entirely without hypnotic effect.

CASE XIII.—Dr. B., aged fifty. Herpes zoster. November 12th. Urethan 15 grains b. d. November 13th, 15 grains t. d. Scarcely any effect, while 1/8th grain morphia gave fair hypnotic result.

CASE XIV.—Sadie T., aged twenty-three. Friedreich's ataxia. Usually sleeps well. For several nights has been tossing, restless, "raving." Gave 15 grains urethan on night of November 26th. Little effect. Patient said she would drop asleep and at once wake again.

CASE XV.—Mrs. O., aged seventy. Ulcerative keratitis. Sleep has been restless for some time. 15 grains urethan on night of November 1st had very little effect. Bromide was of little good in this case unless given with morphia.

CASE XVI.—K., aged forty-five. Fracture of ribs. Urethan in doses of 10 or even 20 grains gave no relief to great sleeplessness. Morphia acted like a charm.

CASE XVII.—Miss N., aged forty. Rheumatoid

arthritis. Very restless at night without much actual pain. 15 grains urethan repeated in a few hours and tried on two successive nights had no appreciable effect.

Case XVIII.—Mary S., aged twenty-five. Contraction of lung after pleurisy. Phthisis? Has dyspnœa; troublesome cough; has been sleeping very badly. Took 15 grains urethan at 10 on night of November 10th. Asleep in an hour. Slept an hour. Repeated the dose at 12. Slept soon after, but restlessly. Thinks she slept but little better than usual.

Case XIX.—Walter S., aged thirty-five. Typhoid fever, third week. Very wakeful for some nights. March 7th. 20 grains urethan at 1 A. M. No effect. 30 grains at 4 A. M. Slept after about ½ hour for 2 to 3 hours. 10th. 30 grains urethan at 11 P. M. Slept after about ½ hour all night; but had also shown disposition to sleep during the day. 14th. 30 grains urethan given in the morning were at once vomited.

To sum up, we see that out of 19 cases there have been but 2 (VIII. and XI.) where the hypnotic action was really satisfactory. In a few others the effect was slight, or it was doubtful whether the sleep could be attributed to the action of the medicine, and would not probably have been obtained without it. In 3 cases (VII., IX., XIX.) there were unpleasant secondary effects, though in the last case the stomach was irritable to other drugs usually well borne. It may be objected that the amount generally employed (15 grains) was two small. This may possibly be true, though it is that usually recommended by the earlier writers, and which we therefore adopted. Moreover, the dose was frequently repeated in 2 hours or less, and in one case (VII.) as much as 60 grains were given during the night without hypnotic effect. It is also true that a few cases constituted too severe a test for a simple hypnotic, as pain or persistent cough was present. We must, nevertheless, conclude that, as far as our experience goes, urethan is an uncertain and unreliable hypnotic, though in large doses it will at times prove useful, and has advantages which at least recommend it for trial in some cases.

AMYL HYDRATE.

Amyl hydrate or dimethylethylcarbinol, which promises to become a valuable therapeutic agent, was first studied by von Mering (*Therap. Monatsh.*, July, 1887). It is one of the tertiary alcohols, its formula being $(CH_3)_2.C(C_2H_5)OH$. It is a colorless fluid soluble in 8 parts of water, and with a smell somewhat like camphor and peppermint. The taste is pungent and unpleasant, though less disagreeable than that of paraldehyde; and the medicine leaves no odor upon the breath. V. Mering administered it to 60 cases of insomnia from various causes, and in only 4 did it prove inefficacious. 2 cases of whooping-cough were relieved by it. The total number of doses given was 350, of 45 to 75 minims by the mouth or by rectum. Its principal action is on the cerebrum, and it is unreliable in producing sleep if pain be present. The author claims that it does not cause headache, nausea, or disturbance of digestion. It may be used with impunity in heart disease, since even with doses sufficient to produce profound narcosis in animals scarcely any effect on the circulation could be perceived. On this account it is greatly to be preferred to chloral; while its smaller dose and less disagreeable taste render it superior to paraldehyde. As regards its relative strength, v. Mering calculates that 1 part of chloral equals 2 of amyl-hydrate and 3 of paraldehyde.

Scharschmidt (*Therap. Monatsh.*, September, 1887) gives the drug by enema or by the mouth, freshly mixed with red wine or sugar, or in brandy. He gave it to 80 cases of mental disorders, with 1051 single administrations. The results were good in 869, medium in 138, and there was no effect in 44. The average dose was 30 to 60 minims. By comparative tests he found it superior to chloral, paraldehyde, and urethan, and considers it 3 times as strong as paraldehyde.

Lehmann (*Therap. Monatsh.*, December, 1887) reports 149 observations in 26 insane patients. The dose employed was 15 to 75 minims, and in 1 case 90 minims. The hypnotic results were good in 83.2 per cent. of cases. In mania large doses were required. Paralysis of the insane was benefited, but the insomnia of melancholia was aided to a less degree. It is a pure hypnotic, sleep lasting 6 to 8 hours. Slight nausea and digestive disturbance were noted in some cases. The author considers it more efficient and less disagreeable than paraldehyde.

Avellis (*Deutsch. med. Wochenschr.*, 1888, No. 1) has treated over 40 cases with more than 300 administrations of amyl-hydrate. It may be given either by enema or by the mouth. Sleep comes on after 15 to 45 minutes, though sometimes there is no effect at all. He considers it, on the whole, a reliable hypnotic, if a sufficient amount be employed, and there are usually no unpleasant secondary effects. Nevertheless, in 1 instance a dose of 37 grains produced a condition like drunkenness in a hysterical woman; and another patient, after the same quantity at 1 A. M., felt as though under the influence of a hypnotic the next day. The medicine rather diminishes the cough of phthisis, could be used with safety in heart disease, and was especially valuable in icteric itching. The author greatly prefers it to chloral in all affections of the circulatory apparatus. Where the stomach is irritable it should be given per anum.

Mason (*Boston Medical and Surgical Journal*, February 16, 1888) has used it successfully in a number of cases of marked insomnia. There were no ill effects at all observed, though mild intoxica-

tion occurred in a few instances. Its action appeared better than that of either paraldehyde or of urethan; and in 1 restless typhoid patient it produced a good night's sleep, when opium, chloral, urethan, and the bromides had no effect.

We have been unable to find any other literature on the use of amyl-hydrate. For the past 3 months we have been testing the virtues of the drug, and are convinced that it is a valuable hypnotic agent. We have given it in 18 cases with 85 administrations. The notes of these are in brief as follows:

CASE I.—Carrie D., aged forty-five. Opium habit. Been resting very badly; going as long as 2 days without any sleep. Has been taking bromide of potash, chloral, hyoscine, Cannabis Indica, and paraldehyde, singly or combined. She often required the following formula to produce sleep: Chloral, grs. xv; potass. bromid., grs. xl; paraldehyde, grs. lx; hyoscine, gr. $\frac{1}{70}$. January 10th. 40 minims of amyl hydrate were given at 9 P. M.; followed in the course of 15 minutes by a slight, happy, singing delirium. After 2 or 3 hours this gave place to quiet sleep lasting the rest of the night. The patient remarked in the morning that she had "not spent such a happy night for many a day." 11th. 25 minims given at 9 P. M. Asleep in 10 minutes, and waked but once during the night. 12th. 25 minims at 9. Same result. 13th. 40 minims at 2 A. M. Slept the balance of the night. The drug was given every night up to February 1st, with equally good results, though the dose had to be increased to 1 drachm. The patient then slept without drugs. On March 24th it was given in capsules and nicely borne.

CASE II.—William N., aged thirty-five. Alcoholic delirium; sixth attack. Very delirious, and could be kept only partially quiet by large doses of hyoscine, bromide, and chloral; but these were stopped as their depressing action was feared. January 10th. Very delirious; screaming and jumping out of bed. 20 minims of hydrate of amyl were given, and the delirium ceased almost immediately, and quiet sleep for 2 hours followed in 10 minutes. Later he was quiet and rational, and slept intermittently. After this date he seemed for a time so much better that amyl was not needed, but later began to show increased signs of mental derangement, and became very maniacal. Large doses of morphia and the bromides were administered with but very little effect. 1 drachm amyl hydrate given, but only quieted him partially.

CASE III.—Robert D., aged fifty-three. Dementia. Constantly talking, mumbling night and day; very often noisy. Has taken morphia, the bromides, chloral, hyoscine, paraldehyde, singly and combined in different ways. Not much effect except from very large doses of bromides, but the depressant action feared. January 15th. 30 minims of amyl hydrate at 9 P. M. Asleep in ½ hour, and slept all night. 16th. Been very talkative during the day. 30 minims at 9. Repeated the dose at 11. Sleep in 15 minutes, which lasted 4 hours; after this did not sleep, but remained very quiet. 17th. 30 minims at 9. Asleep at 11, and slept all night. 18th. 30 minims at 9.50. Did not sleep. 19th. 30 minims at 9.50. Slept very soon until 12. Then awoke and bromides given; after which slept until 4.

CASE IV.—Annie M., aged twenty-three. Rheumatoid arthritis. Occasional exacerbations with rise of temperature, insomnia, and considerable pain. The bromides in moderate doses fail to act. January 28th. 30 minims amyl hydrate at 9 P. M., followed by quiet sleep in 15 minutes, lasting the entire night in spite of the pain. 30th. 40 minims at 9. Sleep in 15 minutes, lasting all night. The drug was used on 4 other occasions with equally good results.

CASE V.—Harry J., aged twenty-five. Advanced phthisis; hectic, great restlessness and excitement at night. January 24th. 30 minims amyl given at 9 P. M., producing, in the words of the patient, "the first quiet sleep I have had for a week." The drug used twice afterward with same effect.

CASE VI.—Henry B., aged seventeen. Typhoid fever, with phlebitis. Great wakefulness. January 25th. 40 minims amyl hydrate at 10. Sound and continued sleep in 15 minutes. On the next 2 nights a similar dose produced each time sound sleep in 15 to 20 minutes.

CASE VII.—Mendenhall B., aged fifty-five. Carcinoma ventriculi. No pain worthy of note, but great insomnia lasting all night. January 28th. 40 minims hydrate of amyl at 9 failed to act. Dose repeated at 10, followed after some time by not very sound sleep. 30th. 40 minims were given at 9. Asleep in ½ hour, and slept until 3. 31st. Same result. February 10th. 40 minims at 9, and again at 10. Slept from 11 until 3. 14th. 40 minims at 9; repeated at 10, but slept only 3 hours. 12th. Slept all night after 40 minims at 9.

CASE VIII.—William D., aged twenty-six. Typhlitis? Was not able to sleep for 3 days before admission to hospital. Pain often severe. January 20th. 25 minims of amyl hydrate at 9 P. M., and again at 9.30, but did not sleep at all. 21st. 40 minims at 9, and again at 11. Slept until 2. After that only short naps. 22d. Pain severe. Had 20 grains bromides and 1 drachm of paraldehyde at 10; and ⅙ grain morphia at 1.30 A. M., but did not sleep at all. 23d. 40 minims amyl at 9. Slept better than on any preceding night, but the pain was less. The same dose was given on 6 other occasions with favorable results.

CASE IX.—Mrs. G., aged twenty-six. Phthisis. Sleep is very poor and cough annoying. February 1st. 40 minims of amyl given at 9 P. M., with very little effect. On 3 other occasions the results were also negative; the constant cough seeming to prevent the action of the drug.

CASE X.—Owen McA., aged forty? Renal and cardiac disease. Dyspnœa; patient often has only a couple of hours sleep during the entire night. January 23d. 30 minims hydrate of amyl at 12.30. Slept all night except during two attacks of dyspnœa. On 8 consecutive nights beginning with February 11th, drachm doses of amyl procured sound sleep lasting all night except during occasional attacks of dyspnœa.

CASE XI.—Miss R., aged twenty-three. Psoriasis.

Insomnia from anxiety. 40 minims of hydrate of amyl were given for 3 nights beginning with February 9th. She slept all night, but later a placebo produced the same effect.

CASE XII.—William J., aged twenty-four. Phthisis. 40 minims of amyl were given once, but he did not sleep on account of the cough.

CASE XIII.—W. C., aged fifty-two. Cancer of the intestine? Has not been sleeping without large doses of morphia. March 2d. 40 minims amyl hydrate at 9 P. M. The patient says he spent one of the happiest nights of his life, being quiet and free from pain, although he did not sleep. 3d. Same dose followed by good sound sleep in 15 minutes.

CASE XIV.—W. D., aged forty-five. Aortic regurgitation. Sleeping very little for three nights, and dreams whenever he is asleep. March 10th. The patient was sound asleep in 15 minutes after 40 minims amyl were taken.

CASE XV.—Charles C., aged twenty. Acute mania, with almost no sleep. Patient is exceedingly noisy. January 20. 25 minims hydrate of amyl given at 9. Slept until 4; and then remained quiet, although he did not sleep. 21st. 25 minims at 9, and dose repeated at 10. Slept all night.

CASE XVI.—Peter T., aged thirty-five. Heart disease. Suffers greatly from cardiac asthma. Wakeful. February 17th. 40 minims amyl at 9. Slept about 2 hours; then awakened with an attack of dyspnœa lasting 10 minutes; then slept until 6 A. M. 24th. 40 minims at 9 failed to act on account of intense dyspnœa. 28th. 40 minims at 9. Slept 2 hours; but after that dyspnœa became almost constant

CASE XVII.—Walter S., aged thirty-five. Typhoid fever; third week. Exceedingly wakeful and longing to sleep. March 8th. 30 minims amyl hydrate last night at 9.15, but no effect. Did not sleep until near morning. 9th. 40 minims last night at 9.15. Slept after about ½ hour until 1; and again from 3 until 9 A. M., and feels greatly refreshed. 12th. 40 minims at 10, but the stomach had been very irritable, and vomited the medicine at once.

CASE XVIII.—Miss H., aged forty. Phthisis. Persistent coughing, not quieted by large doses of morphia, keeps her awake at night. March 19th. 40 minims amyl early in the night procured somewhat better sleep than usual; the patient coughing while asleep. Effect lasted but a few hours.

An analysis of these cases is hardly needed, as the exceedingly favorable results are evident. In only 2 cases were there any unpleasant effects; namely, in Case I., where a temporary delirium occurred with the first dose in a rather hysterical woman; and in Case XIX., where vomiting was produced, though the stomach of this patient was unusually irritable. The taste is often complained of, but we have succeeded in disguising it to some extent with liquorice, as v. Mering suggests.

We have also found it very satisfactory when given in gelatine capsules, each containing 20 minims. The ordinary capsule in two parts will answer nicely for this purpose, and will retain the drug without leaking. A full glass of water should be immediately swallowed after the capsule, in order to avoid offending a possibly irritable stomach. In most cases there is no danger of this occurring.

Our results show that amyl hydrate does not always succeed in producing sleep. Particularly is this the case when pain is present, or when there is very troublesome cough. We believe it nevertheless to be a valuable hypnotic, more powerful than urethan or paraldehyde, and to be preferred to them; and always to be chosen in place of chloral to produce sleep, though it is not so strong as the latter drug.

MEDICAL PROGRESS.

The Treatment of Rectal Pain by Conium.—WHITLA, in the *Practitioner* for April, 1888, describes an ointment of conium and his mode of use as follows:

Two ounces of the pharmacopœial juice are placed in a small evaporating dish, and permitted to evaporate slowly at a heat under 150° F. till the bulk is reduced to about one and a half or two drachms. This can be done by placing the dish on the top of an ordinary domestic hot-water cistern for twenty-four or forty-eight hours. The syrupy liquid is then carefully triturated with as much lanolin as will make the weight up to one ounce; the result is a perfectly smooth adhesive ointment of a light brown or dark fawn color and stable.

Happening to have several rectal cases in which severe pain and torturing pruritus were prominent features the ointment was carefully applied. One was a case of multiple small fissures accompanied with intolerable itching; another was associated with severe tenesmus and excoriations from the pus flowing from an iliac abscess bursting through the *levator ani* muscle and penetrating the rectal walls; another was complicated by a bleeding villous growth. These with two cases of hemorrhoids, one of which had an ulcerated surface, were so markedly and speedily relieved by the conium ointment after nearly every known remedy had failed, that I was surprised at the result.

In a considerable number of cases during the last year the same highly gratifying success was achieved by this remedy, whilst I cannot recollect a single instance where the ointment caused inconvenience. It should be freely smeared *inside* the sphincter, and owing to its adhesive quality can be carried a considerable distance up the rectum by the introduction of the forefinger of the patient.

I have never noticed after its use the serious drawback which follows the prolonged application of every other greasy application to this region, namely a tender, sodden, or raw state of the skin about the margin of the anus.

The ointment appears to me to paralyze the endings of the *motor* nerves distributed to the fine muscular layer under the surface of the mucous membrane; the reflex twitchings of this layer keep up the perpetual pain and uneasiness in diseases of the rectum and anus associated with abrasions, ulcerations, or fissures.

At the same time it undoubtedly paralyzes the sensory filaments. I have obtained relief from its use in vagin-

ismus and some painful conditions of the male urethra, and find it a good lubricant for the sound or catheter.

To the ointment prepared according to the above formula there may be added ten or twelve grains of the persulphate of iron as recommended by Mr. Cripps in fissure. From carefully watching the results of this combination of conium with iron I am certain that it should have a trial before resorting to the knife or cautery. I have seen a fissure heal completely under its use. In acute inflammation of hemorrhoidal growths associated with swelling and painful throbbing some relief may be obtained by the free application of the conium ointment without iron, but it is in those exquisitely painful fissures or conditions where there is a loss of substance in the mucous surface that this remedy will be found to give more relief than any other drug.

Ichthyol Collodion in the Treatment of Erysipelas. — BILIEFF, in the *Revue de Thérapeutique* of April 1, 1888, gives the following formula:

Collodion	15 parts.
Ether,	
Ichthyol	āā 1 part.

For local application.

Chloroform Narcosis and its Treatment.—The *Medical Press* of April 4, 1888, writes as follows on this topic:

It is doubtless a highly inexpedient thing for a medical practitioner to undertake unaided in a private case the administration of the anæsthetic and the operation, whatever it may be, as well. Everything may prove in the end to be satisfactory, but, on the other hand, it is impossible to foresee accidents, and the slightest untoward occurrence, which, perhaps, in itself unavoidable, may precipitate a catastrophe, and lead to lasting regrets, and be productive of other consequences, in themselves scarcely less pleasant. When, however, the surgeon finds himself in the presence of a difficulty under these circumstances, and in peril of losing his patient from the effects of the chloroform, it will mainly depend upon his coolness and power of resource, whether his efforts to bring back the patient to life will be successful or not.

In illustration of this fact we may mention a case which has recently been brought under our notice: A medical practitioner was asked to circumcise a child, eighteen months old. Being an experienced administrator of anæsthetics, he undertook to act the dual part of chloroformist and operator. He put the infant under chloroform, and then handed the lint which was in use for the purpose to the nurse, to hold under his superintendence. Everything seemed to be so far satisfactory, but as soon as had removed the necessary portion of prepuce, he was astounded to find that the wound did not bleed. Quickly turning his attention to the child, he discovered it to be pulseless, and not breathing. He put in practice at once all the ordinary methods of bringing the patient to life, but without avail; and, at this time, the father of the child, who was in the room, seeing the condition of affairs, added to the difficulty of the situation by rushing madly up and down, lamenting his loss. The surgeon, having directed the parent to go downstairs, set to work anew, by getting the nurse to draw out the patient's tongue as far as possible, then with his fingers grasping the nostrils, he blew with all his force into the patient's mouth and fully inflated the lungs. This having been done, he compressed the chest, and then inflated again. This process was carried on for some moments, and suddenly the child gave an involuntary gasp. In the course of time, the process being continued, the child began to breathe of itself, and as soon as respiration was properly established, the surgeon completed the operation in the usual way. Such a near escape from what would have been a terrible misfortune, deserves being recorded, and especially on account of the adoption of the means by which the successful result was mainly brought about.

The Action of Antipyrin upon the Heat Centres of the Cerebrum.—GIRARD has experimented upon rabbits by puncturing the corpus striatum, and giving antipyrin for the resulting rise in temperature. His results showed that antipyrin acts directly upon the nervous centres, producing, after such lesions, a considerable fall of temperature.—*Gazette Hebdomadaire*, April 20, 1888.

Borofuchsin, a New Stain for Tubercle Bacilli.—PROFESSOR LUBIMOFF describes in the *Meditsinskoe Obozrênie* a new stain for tubercle bacilli, which he calls borofuchsin. It consists of: fuchsin, 8 grains; boric acid, 8 grains; absolute alcohol, 3¾ drachms; distilled water, 5 drachms. Prepared thus, it has a slightly acid reaction; it is quite clear and not liable to spoil by being kept, consequently it is always ready for use. The sputum is dried on a cover glass, and stained by being heated in contact with the borofuchsin for one or two minutes. The stain is then washed out by treatment with dilute sulphuric acid. The specimen is then washed with alcohol, and subsequently immersed for half a minute in a saturated alcoholic solution of methylene blue. After being washed in distilled water and dried, the examination of the specimen is made in oil of cedar or in a solution of Canada balsam. In exactly the same way sections of tuberculous organs may be stained after hardening in spirit, only in such cases the steps of the operation must be somewhat more prolonged. The main difference between this and other staining processes for Koch's bacilli is that, when borofuchsin is used, the process of washing it out with sulphuric acid is an almost instantaneous one. All other bacilli are, as when other stains are used, rendered colorless and invisible, the tubercle bacilli being alone seen.—*Lancet*, April 21, 1888.

The Treatment of Violent Colic.—CAPITAN prescribes as follows:

Naphthalin	¾ gr.
Iodoform	⅓ gr.
Tannin	1½ grs.
Antipyrin	1½ grs.

In pill form: these amounts may be doubled, and the pills taken as needed.—*Revue de Thérapeutique*, April 1, 1888.

Cocaine Poisoning after Injection for Hydrocele.—In the *Vratch*, No. 4, 1888, p. 64, DR. NIKOLAI M. UNKOVSKY, of Moscow, relates the case of a strong man, aged fifty-six, suffering from hydrocele, in whom the hypodermatic injection of two Pravaz syringefuls of a four per cent. solution of hydrochlorate of cocaine was followed in a

few minutes by intense excitement, agonizing pain along the spine (especially in the lumbar region), giddiness, blanching of the skin and mucous membranes, dryness of the mouth and throat, weakness of the pulse and voice, paroxysmal dyspnœa, failure of sight, prostration, and complete inability to move the limbs. The patient's state rapidly growing worse, Dr. Unkovsky resorted to free inhalations of amyl nitrite (recommended as the best antidote to cocaine by Professor W. F. Grube, of Kharkov, and Dr. Schilling—see *Journal*, 1887, vol. i. pp. 695 and 1401), and subcutaneous injections of ether. The symptoms gradually disappeared in about an hour and a half. The total quantity of amyl nitrite inhaled (from a piece of cotton-wool) in the course of an hour amounted to nearly 15 minims, while three syringefuls of ether were injected. The operation for hydrocele (injections of a four per cent. carbolic solution, etc.) was absolutely painless. Dr. Unkovsky also saw a case in which mental disturbance occurred an hour after the injection of half a syringeful of a twenty per cent. solution of the alkaloid into the gum. In another patient, an injection of a syringeful of a four per cent. cocaine solution under the skin of the leg gave rise in about six hours to giddiness, suffocation, slowness of the pulse, pallor, and faintness. —*British Medical Journal*, April 7, 1888.

The Treatment of Albuminuric Dyspnœa.—The *Medical Press* states that the administration of two or three drops of nitrite of amyl in a teaspoonful of brandy is said to afford instantaneous and lasting relief in the dyspnœa of albuminuric patients.

The Treatment of Dysmenorrhœa.—GOUBERT prescribes for young girls:

Iodoform	gr. ½.
Ext. belladonn.	gr. ⅙.
Asafœtidæ	gr. 1⅕.

In pill form.

Beginning six or eight days before the time of menstruation, six pills should be taken daily.

For adult women he prescribes:

Potass. iodid.	℥ 1.
Tinct. croci	℥ 2.
Tinct. belladonn.	℥ 2.
Syrup. aurant. cort. . . .	ad ℥ 6.

Dose a tablespoonful morning and evening, in any convenient liquid, for a week preceding menstruation.—*Gazette de Gynécologie*, March 1, 1888.

The Value of Potassium Permanganate as an Emmenagogue.—DR. L'VOFF, writing in a Moscow medical journal on the emmenagogue action of permanganate of potash as described by Drs. Ringer and Murrell in 1883, states that during the four years which have elapsed since the publication of the English physicians' paper he has treated some 200 cases with permanganate. His results are thus summarized in five classes of cases: 1. Thirty-two cases of otherwise healthy girls who suffered from dysmenorrhœa with diminished flux, no assignable cause being made out. Here pills containing permanganate and extract of pulsatilla were ordered for a week or ten days before the period, with excellent results. 2. Seventeen cases where the involution of the uterus after childbirth had been excessive, or where atrophy of the uterus and the ovaries had occurred during lengthened puerperal affections, especially during parametritis. These patients took the pills regularly for from three to six months. Improvement in the quantity of the flux generally commenced in from four to six weeks in young women, and in from three to four months in older subjects. 3. Sixty-two cases where pelvic peritonitis occurred after labor. Here a good result was obtained in the majority of the cases, but in a few no effect was observed. 4. Sixty-five cases of young married barren women, in whom gonorrhœal gonococci were mostly to be found, and many of whom suffered from affections of the tubes or ovaries. In this group of cases the results obtained from permanganate were not very striking—indeed, in many of them it was useless. 5. Eleven cases of early appearance of the change of life (from thirty-five to forty years of age), an atrophic condition of the uterus being always recognizable. Here the permanganate proved useless.—*Lancet*, March 31, 1888.

Cocaine in Tracheotomy.—LENNOX BROWNE writes to the *British Medical Journal* of April 7, 1888, as follows on this point:

Since the introduction of cocaine, neither I nor my colleagues at the Central London Throat and Ear Hospital have employed chloroform when performing tracheotomy, but have in substitution injected five minims of a ten per cent. solution of cocaine on each side of the immediate region at which the trachea is to be opened. Ten to twelve minutes have been allowed to elapse before commencing an operation, and in the majority of instances pain has not been felt even from the first incision through the skin. Local anæsthesia has been maintained sufficiently long to allow of a careful and leisurely performance of the operation, without, however, encouraging that undue tediousness against which Mr. Christopher Heath has recently spoken so opportunely, as a besetting fault of modern surgeons who operate under chloroform.

My experience with cocaine in tracheotomy would be represented by about forty cases; we have had twenty in the hospital and in my private practice during the last year. I have witnessed its good effect especially in the last fortnight, during which time I have had occasion to perform the operation four times, all the cases being on account of cancer, and occurring in patients aged seventy-five, fifty-eight, seventy-seven, and fifty-four respectively.

Beyond the advantages of cocaine as a local anæsthetic, this remedy so applied has the effect of depriving the part of blood, and thereby diminishing hemorrhage during the operation, whereas with chloroform and ether the contrary effect is often produced. It also quiets the breathing and steadies the larynx in cases in which respiration is seriously hurried. In only one case have I seen any toxic action, and that was at once remedied, when the trachea was opened and a full flow of air admitted into the lungs.

The Injection of Sterilized Air in the Treatment of Phthisis.—At a recent meeting of the Academy of Medicine, of Paris, POTAIN reported a case of phthisis complicated by pneumothorax which had been greatly improved by the injection of sterilized air into the pleural cavity. The pneumothorax was cured, and the tuberculous process seemed checked.—*L'Union Médicale*, April 26, 1888.

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THE POISONOUS EFFECTS OF PETROLEUM.

THE general and local effects of the action of petroleum have been carefully studied by LEWIN, who took the opportunity while in this country last year to visit the oil regions of Pennsylvania and the refineries at Point Breeze in this city. The results of these observations appear in the current number of Virchow's *Archiv*.

In response to the question, Is petroleum a poison? Lewin has collected seventeen cases in which it was swallowed by mistake, in amounts ranging from two and a half ounces to two pounds. In the majority of cases symptoms followed, either gastro-intestinal or cerebral. Among the former were a sense of heat in the mouth and throat, distress in the stomach, and colic; there was never vomiting, but often diarrhœa. Jaundice has been noted, and occasionally painful urination. In the cerebral form of poisoning, the patient complains of headache, dizziness, somnolence, and even loss of consciousness, symptoms closely resembling alcoholic intoxication. In three instances there were convulsions. In several cases the urine is stated to have had a strong odor of petroleum, and even to have had drops of the oil floating on the surface. Experiments made upon animals demonstrated the poisonous action of the heavy oils, but in no instance did the urine either smell of petroleum, or contain it in the free state.

The vapor of the oil does not appear to be in the slightest degree poisonous to plant life in the oil regions, nor are there any evident injurious effects upon the inhabitants; but, on the other hand, workers at the pumps, and those who clean the large tanks, are often severely affected. Loss of consciousness, cyanosis, staring eyes with contracted pupils, and lowering of the pulse and temperature have been observed. One fatal case has occurred. In the early stage of this condition the workers may be very excited, and in high spirits, so that at times force must be used to remove them from their dangerous position. These symptoms are probably due to benzine; the asphyxia, doubtless, to the deficiency of oxygen. Instances have occurred in which symptoms of intoxication have followed the spilling of petroleum in a room.

That workers in petroleum are very liable to boils and acne was observed long ago in the Crimean, the Caucasian, and the Roumanian oil regions, and a similar observation on the subject was made by Harrison Allen in this country more than twenty years ago. The most interesting part of Lewin's paper relates to this condition in the workers at Washington, Pa., and at the Point Breeze refinery. The affection is in reality a disseminated acne, in all stages of progressive and regressive change, distributed chiefly on the extensor and flexor surfaces of the arms and thighs. The trunk is less involved, and the genitals are not affected. The cases occur both at the wells and in the refineries; persons of all ages are attacked, the essential condition being direct contact for some time with the crude oil. Some individuals are exempt, and careful attention to cleanliness lessens the susceptibility. At the refinery the workers in the light oils escape, but those are attacked who work in the heavy oils and residue. It is an affection of the sebaceous glands and hair follicles, due to the direct imbibition of the petroleum, and runs a protracted course, yielding slowly to remedial measures so long as the patient remains exposed to the action of the oil.

At a recent meeting of the College of Physicians, Dr. S. Weir Mitchell showed for Dr. J. K. Mitchell a very typical case of the disease in a Point Breeze worker.

SUDDEN DEATH IN PLEURISY AND ASCITES.

ALTHOUGH the experiments of Lichtenstern throw doubt on the truthfulness of the view, many clinicians still hold with Bartel that the most probable cause of this untoward accident is nipping of the inferior vena cava as it enters the heart, a condition which Fräntzel is said to have confirmed by autopsy

in three cases. In Virchow's *Archiv*, Bd. cxi., Heft 3, HAGEN-TORN reports two cases in support of the theory which Lichtenstern has so ably advanced, that the danger arises from an increase of the negative pressure within the thorax, and the consequent engorgement of the right heart and normal lung. In the first case, a woman with cirrhosis and ascites, alarming symptoms followed the removal of seventeen quarts of fluid. The bandage became loose, and serious collapse immediately supervened. Pressure on the epigastrium gave relief; a cushion was at once placed beneath the bandage, and the patient revived in a few minutes. In the second case, chronic empyema with great depression of the diaphragm, difficulty of breathing, and failure of the heart came on during the removal of the fluid. These symptoms disappeared when the diaphragm was supported by means of a pad of cotton-wool bandaged on the abdomen. The condition is one of insufficiency of the diaphragm, and the practical measure resorted to in these cases is worth noting. In the great majority of cases of sudden death in pleurisy no cause has been found at the autopsy; in a few instances, thrombi have existed in the right heart and veins, and in a still smaller number other causes of death, such as abscess of the brain, have been found. Heart failure in consequence of altered conditions of pressure within the chest, certainly seems the most reasonable view to take of these cases.

PREVENTIVE INOCULATION.

IN previous numbers of THE NEWS we have called attention to experiments in preventive inoculation by means of sterilized cultures of pathogenic bacteria, especially to experiments in typhoid fever by Beumer and Peiper, and by Chantemesse and Widal. The latter, in the paper cited, had endeavored to depreciate the value of certain experiments of Salmon and Smith, but as it was foreign to the topic then considered, we made no allusions to that attack. In a recent sitting of the Académie des Sciences, Pasteur, in characteristic language, claimed for his own laboratory priority in the discovery of such inoculations. This has called forth a rejoinder from Hueppe, who gives in the last *Fortschritte der Medicin*, a sketch of the development of our knowledge of the action of bacteria through soluble chemical substances—ptomaines or toxines—and of the efforts made to secure immunity by inoculations of these substances.

Hueppe shows clearly that the first successful experiments of this kind were made by D. E. Salmon and Theobald Smith, of Washington, in the spring of 1886, the virus used being that of hog-cholera (*Proc. of Biological Society of Washington*, viii., Feb. 22, 1886). That the American investigators were fully aware of the immense practical bearing of their results is shown by the quotations by Hueppe, and the latter was so impressed by the facts adduced that he used them in illustration of his remarks before the "Naturforscher-Versammlung" in 1887, on the "genesis of pathogenic action."

Though the full value of these experiments cannot yet be realized, we consider them as marking one of the greatest advances in bacteriology, and destined to do the same for medicine, and it cannot be other than a matter of pride that American investigators have taken such a prominent part in the work, and that the credit, which is their due, is publicly conceded to them by one of the most eminent living authorities in bacteriology.

SMALLPOX has been impartially strewed on both sides of the Atlantic by that pestiferous steamer, the "Circassia." One of the latest cases to come to light is that of a Scottish immigrant, who arrived at New York early in March, and thence found his way to Goldsboro, North Carolina. He states that there was a case of the disease on shipboard that died. They were detained at quarantine only about nine hours; all on board were vaccinated, and were then "let loose on the country," as Dr. M. E. Robinson expresses himself, in his report of the case, dated April 21, in the last *Bulletin of the North Carolina State Board of Health*. At that date, the patient had nearly recovered. Prompt and thorough measures for the prevention of the spread of the pest were employed at Goldsboro, and no second case has arisen. Five of the crew of the "Circassia" were taken down with the disease on the return voyage.

AT the recent Congress of German Surgeons von Bergmann announced a plan for the erection, in a central location in Berlin, of a memorial building to von Langenbeck. The building is to contain an auditorium seating 700 or 800 persons, and accommodations for a large library. The building will cost about $100,000, half of which is pledged by individuals or by the Society; the rest will be raised by a loan on the building. The German Society for Surgery will be the virtual possessor of the building,

but the Berlin Medical Society will also make its headquarters there. A committee composed of von Bergmann, Bardeleben, Hahn, and Langenbuch, was appointed to further the plan.

THERE have been a number of deaths by electricity within the past month, chiefly in consequence of defective management of the wires used in electrical lighting. The powerful current carried along the wires that are strung overhead in nearly all our cities requires a completeness of insulation that taxes severely the ingenuity of experts. Much of the danger will be obviated by compelling the companies that supply the lights to run their street wires in underground conduits, as is done in Europe. Fatal accidents are comparatively infrequent in foreign cities, but it is said of the underground system that "it has hindered the development of electrical interests" in London and elsewhere.

In the case of a death recently occurring in New York City, the verdict of the Coroner's jury found that one of the illuminating companies was chargeable with the death, and that the overhead system is a standing menace to health and life, and that it is the duty of the authorities to take immediate steps to have the wires conducted underground. The interests of the public health and safety far outweigh the interests of the corporations; and as the Coroner said on the occasion of this inquest, "it matters not how difficult or expensive it may be to meet the dangers incident to electrical illumination, it must be done; public health and life must be protected."

A NEW ophthalmic hospital is projected in New York City, to be known as the New Amsterdam Eye and Ear Dispensary. It will have for its chief medical officer Dr. Thomas R. Pooley, who for fifteen years has been the colleague of Dr. Herman Knapp, at the New York Institute. If this project shall prove a success, it will make the fourth of the kind in that city, and the ground pertaining to this specialty will have been very thoroughly covered. In the three institutions now in successful operation there are treated annually over thirty thousand cases, and at a cost of not less than fifty thousand dollars. There will be associated with Dr. Pooley as medical staff Drs. L. Bolton Bangs, J. W. Barstow, and C. S. Ward.

THE Thirty-ninth Annual Session of the Medical Society of the State of Pennsylvania will be held in Philadelphia, on June 5th, 6th, 7th, and 8th, at Association Hall, Fifteenth and Chestnut Streets, under the Presidency of Dr. R. J. Levis, of Philadelphia.

A CREMATION SOCIETY has been recently organized in Chicago, and a stock company will be formed, and a crematory erected as soon as possible.

THE College of Physicians and Surgeons of New York graduated a class of 120 at its recent Commencement.

THE College of State Medicine was incorporated in London in 1887, and is presided over by Sir Joseph Fayrer. The course of lectures during the summer session will be given in rooms of the Chemical Society, Burlington House. Among the lecturers will be Professors Klein, Fleming, Fayrer, Brudenell Carter, Seely, and Sir Robert Rawlinson. The regular professor of hygiene and public health is Dr. Wm. Robert Smith. The Public Health Laboratory connected with the College will be open throughout the session, which opens early in May.

DR. C. S. MUSCROFT, of Cincinnati, died at his home on May 8, 1888. He was a surgeon of large experience and wide culture, and had been for many years a member of the staffs of St. Mary's and the Cincinnati Hospitals.

SOCIETY PROCEEDINGS.

AMERICAN MEDICAL ASSOCIATION.

Thirty-ninth Annual Meeting, held at Cincinnati, May 8, 9, 10, and 11, 1888.

(Specially reported for THE MEDICAL NEWS.)

GENERAL SESSION.

FRIDAY, MAY 11TH.—FOURTH DAY.

The Association was called to order by the President at 10.30 A.M.

DR. H. P. WALCOTT, of Boston, delivered

THE ADDRESS IN STATE MEDICINE.

(See THE MEDICAL NEWS of May 12th, page 510.)

DR. N. S. DAVIS then presented the

REPORT OF THE COMMITTEE ON METEOROLOGICAL CONDITIONS.

It embodied: 1. A summary of facts gathered concerning all appreciable meteorological conditions coincidentally observed and recorded in different parts of the country. 2. The efforts made to determine how far these facts show any constant relation of one series of facts to

another. 3. A summary concerning the prevalence of a number of the acute general diseases, more particularly typhoid fever. 4. Critical examination instituted to determine what uniform coincidence, if any, can be traced between the more immediate meteorological conditions and the prevalence of disease.

The following questions were propounded: 1. Is it probable that the free albuminate of ammonia when existing in the atmosphere, compared with the amount of ozone and hydrogen protoxide, can constitute the pabulum for the rapid development of either pathogenic germs or ptomaines, and thereby afford an explanation of the apparently simultaneous attacks of some epidemic diseases in several persons in the same city or district, yet without any other traceable connection with each other? 2. Do the well-established facts attending the development or propagation of typhoid fever and cholera justify the inference that the specific causes acquire active propagating pathogenic forces only exterior to the body, and in connection with soil water? 3. May such specific causes continue to propagate and retain their pathogenic force indefinitely exterior to the body, or do they pass one stage of development in the body and another exterior to it?

On motion, the Committee was continued.

DR. I. N. QUIMBY, of Jersey City, presented the report of the special committee on

THE CRIMINALITY OF FŒTICIDE, AND EFFORTS FOR ITS PREVENTION.

Objections to the report were raised by several members, and it was finally tabled. Subsequently, however, on motion of Dr. I. N. Love, of St. Louis, it was taken from the table and referred to the Section on State Medicine.

DR. H. O. MARCY, of Boston, presented a report of the special committee on

THE DUTIES COMMONLY EXERCISED BY CORONERS,

which was adopted as read.

On motion a resolution was adopted urging upon Congress the importance of the immediate passage of Senate Bill No. 2493 to perfect

THE QUARANTINE SERVICE OF THE UNITED STATES,

which bill has passed the Senate and is now pending the action of the House of Representatives, in order to make provision against the introduction of contagious diseases before the approaching summer.

A motion was made and carried to take from the table the amendment proposed to the by-laws of the Association at the last meeting by Dr. Carl Seiler, of Philadelphia, providing for the

DIVISION OF THE SECTION ON OPHTHALMOLOGY, OTOLOGY, AND LARYNGOLOGY,

so as to make one section on ophthalmology, and another on otology and laryngology. The amendment was adopted.

HIGHER MEDICAL EDUCATION.

DR. I. N. QUIMBY presented a resolution recommending the appointment of a committee, to consist of one member from each State, whose duty it shall be to devise the best means to secure adequate legislation to provide for the examination of the charters of colleges, and provide for higher medical education.

The motion was tabled.

400TH ANNIVERSARY OF THE DISCOVERY OF AMERICA.

The following resolution was adopted:

Resolved, That the American Medical Association approves the movement looking to the celebration in Washington, in 1892, of the 400th anniversary of the discovery of America by Columbus, and the establishment there of a museum of arts, industries, and antiquities of the three Americas; and the Association hereby requests Congress to pass the necessary legislation preparatory to this end. Carried.

The Secretary then read the reports of work done by the various Sections, as transmitted by the several secretaries.

The following members were appointed

DELEGATES TO FOREIGN MEDICAL SOCIETIES:

R. A. Plummer, M.D., of San Francisco; H. A. Kelly, M.D., of Philadelphia; N. S. Davis, M.D., of Chicago; W. H. Myers, M.D., of Fort Wayne, Indiana; A. E. Hoadly, M.D., of Chicago; I. E. Waxham, M.D., of Chicago; Alex. McAllister, M.D., of Camden, N. J.; J. J. Chisholm, M.D., of Baltimore; D. A. K. Steele, M.D., of Chicago; J. V. Shoemaker, M.D., of Philadelphia; S. J. Jones, M.D., of Chicago; J. E. Owens, M.D., of Chicago; Ephraim Cutter, M.D., of New York; L. A. Sayre, M.D., of New York; V. C. Vaughan, M.D., of Ann Arbor, Michigan.

THANKS.

The following resolution was adopted:

Resolved, That the heartfelt acknowledgment of this meeting be tendered to the physicians of this city, to the Apollo Club, and to all who have contributed toward the great success of the session, and especially are our thanks due, and we take pleasure in this manner to express them, to the fair coterie of ladies who have given brilliancy to the social entertainments by their charming presence. They are the best jewels in the crown of this metropolis, which is destined to be the Queen City of the East as well as of the West.

The Association then adjourned to meet in Newport, R. I., on the first Tuesday in June, 1889.

SECTIONS.

OBSTETRICS.

TUESDAY, MAY 8TH.

DR. ELY VAN DE WARKER, of Syracuse, opened the meeting with some remarks on

HOW GYNECOLOGY IS TAUGHT.

In which he dwelt upon the imperfect way in which this branch is taught in the colleges of the United States. The introduction of the graded system, with its methods of text-book study is the adoption of a method already discarded by progressive educators. It is a method detrimental to both student and teacher. Of 109 medical colleges in the United States, and only those are selected which are approved by the Illinois Board of Health—in only 56 is the subject announced in their catalogues as taught. In 14 the chairs of the diseases of women and children are united. In 32 there are professors or lecturers on gynecology. In 10 no mention is made of the subject. One announces 44 lectures on gynecology. In

66 of the 109 the diseases of women are taught by the professor of obstetrics or not at all.

Dr. Joseph Price, of Philadelphia, next presented a brief paper upon

THE SYSTEM OF VISITING NURSES AS ORGANIZED IN PHILADELPHIA.

Dr. W. W. Jaggard, of Chicago, then presented a

NOTE ON THE OCCASIONAL RELATION OF ENDOMETRITIS GRAVIDARUM TO THE PERNICIOUS VOMITING OF PREGNANCY.

He reported a case with a careful analysis, calling attention to the occurrence of these cases, with a plea for more careful diagnosis, (1) as to the existence of pregnancy, (2) as to the factor causing the vomiting, (3) as to the causes of vomiting independent of the vomiting. To the care taken in making the diagnosis he attributes the infrequency of cases of pernicious vomiting reported in German literature as compared with French and American. In the case reported all remedies for checking the vomiting, including dilatation of the cervix, were unavailing, and the patient's condition becoming critical abortion was induced at the fifth month. Examination of the membranes showed pathological conditions identical with Herger's description of the conditions in hydrorrhœa gravidarum. Cessation of nausea and vomiting immediately followed the abortion and the patient made a good recovery.

Dr. DeLaskie Miller said these cases are not infrequently met with in practice, and he was glad attention had been drawn to the subject. The plan of delaying too long the induction of abortion, too often resulted in the death of the mother. Since having departed from this rule he has obtained better results.

Dr. Nelson, of Chicago, stated that in his experience the pernicious vomiting is usually associated with displacements of uterus or appendages.

Dr. Marcy, of Boston, referred to the views of Ercolani as to placental development. These cases are not cases of inflammation of the decidua, but the secretory and absorptive organs of the placenta are not in proper relation, there is a lack of proper placental development.

In the cases of vomiting due to this cause, it is useless to trust to medication, and abortion should be induced early, since there is certain to be one of two results if they are let alone—the death of the fœtus and its spontaneous extrusion, or the death of both mother and fœtus.

Dr. Wm. Goodell, of Philadelphia, then read a paper upon

NEUROSES OF THE RECTUM.

In hysterical affections of the muscles, the circular muscles—sphincters—are most liable to be attacked. Rectal neuroses are not infrequent. There are usually present some of the symptoms of general nervous prostration; but often the rectal trouble is the chief symptom, and so prominent that the physician is led to believe some grave affection of the part is present. There will, however, be noticed an irregularity in the pain; an affectation of suffering; a lack of consistency in the symptoms. One class of cases closely simulates the symptoms of fissure. In another, a throbbing pain when the bowel becomes loaded, and a burning pain in defecation are present. These cases are often cured by over-stretching the sphincter. Disease of the coccyx must be carefully excluded. Sometimes stricture is so completely counterfeited that the feces are passed in ribbons or pellets. In some cases, defecation is followed by great exhaustion. Cases were cited showing the strange pranks played by the hysterical rectum.

Another class of cases are those known as follicular enteritis. He has found these cases always to be hypochondriacal or hysterical. In the treatment the general nervous prostration must first be cured by the Weir Mitchell plan of treatment. When the evacuations are followed by great exhaustion, it is important to secure a passage at bedtime. Suppositories of iodoform or antipyrin may be used as in fissure, or over-stretching may be resorted to, and repeated if there is a relapse. In follicular enteritis he has found injections of broths, flaxseed tea, witch-hazel, undiluted lime water, etc., useful; opium is to be avoided. The compound sumbul pill he has found of advantage. The bromides are often needed. When patients are so situated that the Weir Mitchell treatment cannot be employed, an hour or two of absolute rest daily in bed, in a darkened room, should be insisted upon.

Dr. Gordon, of Boston, spoke on

HYSTERECTOMY FOR CANCER.

Cancer of the uterus should not be an exception to the surgical rule now generally adopted, to remove as soon as possible. He reported three cases with one death, two are living and doing well.

Dr. Goodell expressed himself as "on the fence," being yet undecided, from the number of cases reported, and the length of time elapsed after operation, as to the justifiability of the operation. He had operated twice, one died from septicæmia; the other lived six months, and died from recurrence.

Dr. Cushing, of Boston, had seen the operation so successful in Berlin that he favored it.

Dr. Howard A. Kelly, of Philadelphia, considered that there was no question as to the legitimacy of the operation.

Wednesday, May 9th.

Dr. L. H. Dunning, of South Bend, Indiana, read an exhaustive paper upon

DOUBLE UTERUS AND VAGINA.

After reporting an interesting case, he gave an analysis of 97 cases whose histories he had collected. In the 97, there were

Uterus bipartitus	7 cases.
" unicornis	3 "
" bicornis	52 "
" bilocularis	23 "
" single, neck and vagina double	2 "
Not clearly stated	10 "
Atresia of vagina	6 "

Of the 97, 47 were married, 3 unmarried bore children, making 50 mothers.

No. women pregnant	42
" of pregnancies	76
" " natural labors	42
" " difficult labors	13

Means of relief in these:

Forceps in	7
Turning	1
Septum cut	4
Rupture of uterus	1

Of the 42 pregnant women, 14 miscarried eighteen times. 23.6 per cent. of pregnancies resulted in abortion or miscarriage. No instance of a pregnant uterus bipartitus is found in the 97.

There were—pregnancies in

Uterus unicornis	3
" bicornis	21
" bilocularis	12
Single uterus with double vagina	4
Unknown form	2

He concludes that the malformation is more common than generally supposed.

Dr. W. H. Taylor, of Cincinnati, reported two cases which had occurred in his practice.

Dr. Howard A. Kelly, of Philadelphia, mentioned several cases which he had seen, and stated that he believed the malformation to be more common than is usually stated.

Dr. Goodell reported a case in which diagnosis of extrauterine pregnancy was made and a contemplated operation only avoided by the timely discovery of the mistake.

Dr. Franklin H. Martin, of Chicago, read a paper upon

THE VALUE OF GALVANISM, AS APPLIED BY APOSTOLI IN THE TREATMENT OF FIBROID TUMORS OF THE UTERUS.

1. A means of generating a continuous current of electricity of steady and uniform character, that can give an actual current strength through a resistance of two hundred ohms, of 500 milliampères, is necessary in order to obtain all the benefits of this treatment.

2. Fibroid tumors of small size can be completely absorbed by the proper application of strong currents of galvanism.

3. Hemorrhages from hemorrhagic fibroid tumors can be promptly cured by the local coagulating effect of the positive pole by intrauterine application. Severe neuralgias, so often accompanying these troubles, can invariably be relieved by three or four applications of this treatment.

4. When the cervical canal cannot be entered by any form of intrauterine electrode, flexible or otherwise, after repeated trials, a negative galvano-puncture should be made into the presenting part of the obstructing mass of the tumor and an artificial canal opened, which is to take the place of the impenetrable uterine canal in all subsequent treatments.

5. The intrauterine electrode should in all cases be negative, unless there is hemorrhage or excessive leucorrhœa, when the positive pole is always required. The same patient may, however, present symptoms demanding the use of both poles at successive operations.

6. The strength of the current should depend entirely upon the amount of active surface of the internal electrode, and should be twenty-five milliampères for each square centimetre of active surface in actual contact with the endometrium. If more is used, the concentration of the current will be sufficient to cause troublesome cauterization; if less is used, the concentration at any one point will not be sufficient to cause the necessary coagulation for checking hemorrhage.

7. The duration of the treatment should be five minutes of the maximum current required.

8. The number of operations is necessarily dependent upon and influenced by the result to be accomplished. A severe hemorrhage can be checked, and symptomatic relief can often be accomplished by four or five séances, while a general reduction of the tumor necessitates many operations, varied, of course, according to the size and location. In some cases of large multiple tumors a relief of symptoms, or symptomatic cures, must be accepted as a substitute for an actual cure.

9. The operation should be intermenstrual, if possible; if hemorrhage is continuous, however, operate during flow. The séances can occur as often as every day, with the system of concentration adopted that enables one to attack different portions of the canal at succeeding treatments, or treatment can be given with advantage as seldom as once a week.

10. Since the adoption of the flexible intrauterine electrodes and Dr. Apostoli's vaginal galvano-puncture, extrauterine puncture should be regarded, if at all, only as a last resort.

11. Galvano-puncture needles and the internal electrodes, should be constructed of material that is not injured by coming in contact with strong carbolic acid, or 1:1000 bichloride of mercury solution. All internal electrodes should be thoroughly scrubbed with a nail brush and soap and water after each application, and allowed to remain in one or the other of these standard antiseptic solutions until they are to be employed again, when they should be washed in a weaker solution of the same before using. Before a vaginal puncture is made, the vagina should be thoroughly wiped out with a 1 to 3000 bichloride solution.

12. There is no excuse for any percentage of mortality in the proper application of this treatment. While Dr. Apostoli has had two deaths in 275 cases, he candidly admits they were due to avoidable accidents, rather than to any legitimate result of the operation.

13. In experienced hands, and by the adoption of the present means of concentration, the most delicate and sensitive patient can receive, without experiencing any severe discomfort, all the benefits to be derived from this valuable treatment.

Thursday, May 10th.

Dr. Wathen, of Louisville, read a paper upon

ABDOMINAL SECTION IN EXTRAUTERINE PREGNANCY,

in which he favored operation as soon as the diagnosis could be made. In most cases the sac can be removed, and hemorrhage controlled, by proper application of ligatures. The objection to operation on the ground of the difficulty of separating the sac, is more theoretical than practical. If it cannot be removed, it may be left.

Dr. A. W. Johnston, of Danville, Ky., followed with a paper upon the same subject. He claimed that the treatment by electricity at any period was wrong in principle, dangerous in practice, and disastrous in its results, and that it would soon be entirely discarded by the profession. To destroy the life of the fœtus is not sufficient,

the growth of the placenta must also be stopped. To do this requires such a shock to the pelvic nervous supply as to be dangerous. It is now established that the early cramping pains, attended with prostration of the patient, are really due to slight ruptures of the tube. When electricity succeeds in destroying the life of the fœtus, and checking the growth of the placenta, the danger is not over, the mother is still liable to septic infection from the remaining mass; and the subsequent history of these cases is often one of chronic invalidism. Operation should be made as soon as the condition is discovered.

Dr. Rufus B. Hall, of Cincinnati, made

A PLEA FOR EARLY OPERATIVE INTERFERENCE IN CASES OF OBSCURE PELVIC PAIN.

It is now known that recurrent attacks of pelvic peritonitis are very often due to disease of the Fallopian tubes. He would recommend the operation before the patient's general condition is too bad for recovery, and after careful treatment by other means had failed. By operation very many cases, doomed otherwise to life-long invalidism or to death, may be saved. By modern methods and in experienced hands the mortality from operation is not more than from two to six per cent. He cited Lawson Tait's experience, and the intense opposition he had encountered. The general profession being opposed to operation allow these cases to die which ought to be relieved by operation. He reported one case, which having refused operative interference, died under "expectant" treatment, and two cases in which removal of the tubes and ovaries was followed by complete relief, and the restoration of the patients to complete health.

Dr. C. R. Reed, of Middleport, Ohio, read a paper upon

THE EARLY REMOVAL OF ABDOMINAL CYSTIC TUMORS.

He condemned tapping, and favored the removal of the growths as early as possible.

Dr. Marcy, of Boston, presented a paper upon

EXPLORATORY LAPAROTOMY.

He advocated the more frequent resort to the operation in obscure cases, and reported illustrative cases from his own practice.

Dr. Wm. H. Myers, of Fort Wayne, Ind., next read a paper on

TREATMENT OF ACUTE PERITONITIS.

The old plan of treatment by opium should be abandoned. The best results are to be obtained by the early and free use of saline cathartics. Peritonitis is never idiopathic. Its treatment belongs to the surgeon rather than the physician. Antiseptic precautions and drainage were prophylactics to be employed in operations. Patients should not be allowed to die of peritonitis without the benefits of operation. Free irrigation was commended.

Dr. Goodell opened the discussion upon the papers read by stating that in the main the views expressed were in accord with his own; yet some of them were rather too sweeping. He agreed with Dr. Meyers that free purgation should be employed at the beginning of an attack of peritonitis; uses opium as little as possible, but in cases attended by severe pain it would be cruel to withhold it. He would not remove a small stationary ovarian growth which was giving no trouble, and such cases he had had under observation for years.

Dr. Hall's paper he thought too sweeping. Many cases may be cured by the Weir Mitchell plan of treatment, and without operation. If the truth were known, a larger per cent. of cases operated upon die than has been stated.

Dr. Robert Battey wished to make some corrections as to history in the paper of Dr. Hall. Lawson Tait says that he does not operate with the design of producing the change of life, but he removes ovaries and tubes to cure pain as the dentist pulls an aching tooth. An American surgeon, as long ago as 1872, did operate with this object—*i. e.*, to produce the change of life—distinctly in view.

Dr. Hall had referred to Tait's great opposition from the profession in England, but the fight on this question was all over in this country before Tait's voice had ever been heard on the subject. It was not until seven years after the first operation in this country that Tait made a claim to have operated in a case one month earlier than Battey. In 1879 he came forward and stated that in a private conversation with Dr. Chadwick, of Boston, he had told of this operation. Dr. Chadwick has no recollection of such a conversation. Why did he remain silent for these seven long years, while the warfare was going on in this country? Why had he made no mention of the subject in his book on the ovaries published in the meantime? "When the fox-chase was all over he came forward and wanted to cut off the fox's tail."

Dr. Howard A. Kelly stated that a large portion of the profession were ignorant of the truth in regard to Dr. Battey's claim to priority, that he himself was for a long time; but having investigated the subject he had found that Dr. Battey was undoubtedly entitled to the credit of having originated it.

Dr. Hall, in reply to Dr. Battey, stated that his paper was not concerned with the question of the priority of the claimants to oöphorectomy.

Adjourned.

Medicine.

Tuesday, May 8th.

Dr. N. S. Davis, of Chicago, opened the meeting by announcing the death of Dr. A. B. Palmer, of Ann Arbor, the Chairman-elect, and the unavoidable absence of the Secretary, Dr. N. S. Davis, Jr., of Chicago. An election of officers was then held with the following result:

Chairman.—Dr. W. C. Van Bibber of Baltimore.

Secretary.—Dr. G. A. Fackler, of Cincinnati.

Dr. Van Bibber opened the discussion

ON PNEUMONIA, ITS ETIOLOGY, PATHOLOGY, AND TREATMENT,

with a consideration of the mechanism of pneumonia and its treatment. His remarks covered two points: 1st, an inquiry into the initial causes of pneumonia; and secondly, the treatment of pneumonia.

He recognized among the predisposing causes of pneumonia four, which are quite different from each other, and each one of them must produce the same effect, viz., congestion in the capillaries, by a different mode of action. The causes are age, cold, malaria, and alcohol. He stated the following conclusions: The predisposing

causes, as the name implies, do not produce pneumonia, *de ipso facto*, but they have already worked such structural changes in the body that upon further disturbance of the system a congestion of the numerous pulmonary capillaries is more likely to occur than any other diseased condition.

A study of these structural changes, brought about by the predisposing causes, gives advantages, both in advisory prophylaxis, as well as in treatment.

He introduced the discussion of the treatment of pneumonia with the statement from Fothergill, that "every new remedy almost is tried in turn in pneumonia. It is a disease particularly suitable to speculative medicine." He had determined to present the subject by means of four hypothetical cases: one a child of eighteen months, one a youth of twenty-five years, one sixty-five years of age, complicated with malaria, and one case seventy years old, complicated with old age, malaria, and alcohol. In the discussion of these cases much stress is laid on cupping over the roots of the lungs, between the shoulders, or, more particularly still, between the third and eighth dorsal vertebræ, in order that by the laws of counter-irritation over affected parts, the circulation through the roots of the lungs may be kept entirely free and open. It is also a means of controlling, or, at least, of moderating, the effects of high arterial action during fever. It is valuable for the relief of pain and oppression it affords.

The medicines recommended are five in number: muriate and carbonate of ammonium, the former acting upon the circulation in the capillaries, assisting to unload them when they become engorged, as a resolvent, a general expectorant, and a diaphoretic; the latter as a stimulant, a resolvent, as a remedy which prevents the coagulating or engorging of blood in the capillaries. It may also be used as a vehicle in inhalations. Antipyrin and antifebrin seem to control the fever, by diminishing the heat of the blood. Digitalis, veratrum viride, strychnia, strophanthus, and other remedies, are valuable.

Dr. J. T. Whittaker, of Cincinnati, said that it is no exaggeration to say that the past two years have been more eventful in the history of pneumonia than any period in the past two thousand, for in this short space of time pneumonia, a disease which causes 6.6 per cent. of the total mortality, and 12.7 per cent. of the mortality of internal affections, has been definitely placed among the acute infections.

Pneumonia is now known to be an acute infection with the symptoms, course, and lesions characteristic of this class of diseases. With this knowledge came the correction of many errors which like the envelopes of a veiled statue obscured the figure so that only its rough outlines could be seen. The first intimation in this direction came from a recognition of the fact that pneumonia sometimes assumes epidemic proportions, but the deathblow came to the old conception of the nature of the disease in the establishment of the fact that it does not result from taking cold. Over 80 per cent. of cases can recall no possible exposure to cold in explanation of the origin of the disease. Another error perpetuated from time immemorial, that pneumonia picks by preference upon the healthy and robust, was corrected in the observation that the disease has a predilection for enfeebled conditions. Dietl declares that but 18 per cent. of cases were previously healthy. The subjects of rickets, tuberculosis, syphilis, alcoholism, malaria, anæmia, previous infections, etc., furnish the victims of pneumonia. Then it was discovered that while wounds may cause an inflammation of the lungs they can in no way produce a croupous pneumonia. Not the out-door but the in-door life is especially liable to attack. Soldiers are attacked in garrison and barracks, not in active campaign. Sailors who are exposed to the cruelest inclemencies and vicissitudes of weather are almost never attacked on the open sea, and but rarely, though more frequently, when near shore. 17.02 is the appalling percentage of deaths among the nuns in Paris, while that of washerwomen is but 3 per cent. Among 674 individuals engaged in unloading vessels, standing often waist-deep in water, Parent du-Chantilet found but one case of congestion of the lungs. On the other hand, prisons, factories, and tenement-houses furnish a large contingent of cases of this disease. The proportion of cases in cities to country is as 5 : 2.

But while it is acknowledged that cold and trauma are not the real causes of the disease, it may be admitted that they do, in exceptional cases, act as exciting agents where the cause preëxists in the body, just as injury to the brain and spine may excite abscess of the brain or caries of the spine, or measles excite tuberculosis.

It was the observation of these facts that gradually led advanced thinkers in clinical medicine, notably Oppolzer, of Vienna, and Andrew Clark, of London, to the belief that pneumonia was not the type of the acute inflammations produced by cold, but was probably due to some peculiar condition of the atmosphere. It was reserved, however, for Juergensen, of Kiel, in 1872, to formulate this view more precisely in the declaration, as the result of his observations, that pneumonia was an infection, and thus to stimulate the bacteriologists to discover its cause. Juergensen saw, 1, that the disease had different temporal and causal relations from the affection commonly ascribed to cold; 2, that the general symptoms, —fever, nervous symptoms, prostration—by no means always correspond with the extent of invasion of the lung; 3, that the disease runs a typical course with a definite termination in five to nine days; 4, that its lesions and complications on the part of the heart, lungs, kidneys, and spleen were the same as the other infections, and was thus able to declare the character of the affection in the absence of any distinct proof. When this proof should be furnished seemed only a matter of time. Klebs first appeared with his monadines found in bronchial secretions, cultivatable in proper soils, and inoculable to produce the disease in rabbits. There is little doubt now that Klebs was able to produce the disease by inoculation but not with pure cultures. Eberth and Koch next each observed ellipsoid micrococci in the lungs, meninges, and blood, though not with sufficient evidence of pathogenic properties. The memorable disclosures of Friedländer, in 1883, of capsule cocci constantly present in the exudation into the lungs, lymph vessels, and pleural effusions furnished the first evidence of satisfactory character that this microörganism could be successfully isolated, cultivated, and inoculated to produce the disease in certain animals. But it was soon seen that Friedländer's microörganism was present in but the smallest contingent of cases, according to the observations of Weichselbaum in but 5.5 per cent. Fränkel next, in 1886, isolated a pneumococcus quite similar to, but not identical with that of Friedländer,

which a number of subsequent observers find present in nearly all the typical cases of the disease. This organism which Weichselbaum distinguishes as a diplococcus with candle-light or lancet-shaped elements, and which seems to be identical with Sternberg's sputum septicæmia bacterium, can be detected in over 90 per cent. of cases. Though often confounded with that of Friedländer, its different manner of growth quite easily distinguishes it, and the great frequency with which it is found gives it, at the present time, supreme importance. Artigalas and Pane have each since advanced a special microörganism as the cause of the affection, and Weichselbaum admits that the lesions of pneumonia may be produced by the introduction into the lungs of the streptococcus and staphylococcus of pus. There is reason to believe that the typhoid bacillus may also produce hepatization of the lung.

Thus, there is no poverty of material in the etiology; on the contrary, an *embarass des richesse*. What are we to conclude from this abundant and apparently conflicting testimony? It is safe to conclude, in the first place, that lobar pneumonia has not yet been finally resolved; that there are various forms of the disease, undistinguishable as yet by physical signs. Clinical medicine has long since separated primary and secondary pneumonia. The pneumonia incident to typhoid fever, scarlatina, smallpox, dysentery, and other infections, shows a character and course quite different from the primary acute croupous disease. That secondary pneumonias may be readily explained by invasions of the lungs with the microörganisms of these diseases, is quite certainly established at least for typhoid fever. Other cases admit of explanation on the ground of mixed infection. Thus, suppuration is not a natural termination of acute croupous pneumonia. Suppuration means a coincident or subsequent invasion of the lungs by the organisms of pus. Omitting all these cases, we have left pneumonia proper, which can certainly be produced by the diplococci of both Friedländer and Fränkel. Whether these pneumonias differ in their character, or what fine differences they present, we know not as yet, but we do know, clinically, that acute croupous pneumonia has a classically typical course. Few other infections, Baumgartner declares, present a course so uniform and so regular. It is, therefore, safe to assume, as in the case of other infections of uniform course, typhoid fever and erysipelas, for instance, a single sole cause in the production of pneumonia. Whether or not this cause has been discovered in Fränkel's microörganism cannot be declared as yet, but the bulk of recent testimony lies certainly in this direction.

Then, to speak only from a clinical standpoint, this organism is most uniformly found in the sputum of perfectly recent cases, or in the first days of the disease, a fact which gives it supreme value from the point of view of differential diagnosis. Thus, in the examination of seventy successive cases, Wolff found Fränkel's diplococcus 66 times—*i. e.*, 94 per cent., and Friedländer's but 3 times—*i. e.*, 4 per cent. The examination was negative in but a single case. Verification was established by cultures in more than half the cases.

The diagnosis of pneumonia is generally easy, but difficulties are often presented in the separation of tuberculosis and pleurisy, and still more frequently in the first days of the disease. Illustrative cases of the value of the pneumococcus in this direction, are reported by Russian physicians. Thus Ignatieff, of Moscow, details four cases of tuberculosis complicated by pneumonia as recognized by the discovery of both forms of bacteria, and maintains that the presence of the diplococcus renders much more grave the prognosis of tuberculosis. The coincidence of the affections was verified on autopsy. Kotovshtchikoff, of Kazan, describes five cases in which the diagnosis of pneumonia could only be made in this way. In two cases a central lesion ran its course without physical signs up to the fifth and seventh day; in the other three the signs were those of pleurisy. Khomiakoff declares that he was able thus to diagnosticate the disease twenty-four hours, and Lubimoff seventy-two hours, before the appearance of any physical signs.

A most interesting clinical contribution was offered in the report of Ampugnani, at the Italian Congress of Physicians, September, 1877. Ampugnani had made hourly observations of the temperature in one hundred cases of pneumonia, revealing the fact that the temperature underwent oscillations of ¾° to 1° in successive hours of the same day. These fluctuations, which in extreme cases ranged over three degrees, were characteristic rather of mild cases. Severe cases showed a more continuous and sustained elevation. But the fatal cases were not characterized by the very high temperatures. Death does not occur from fever, but from heart complications.

Now it is known of Fränkel's bacteria that a high temperature attenuates and a higher destroys its virulence. A temperature of 107° destroys virulence in twenty-four to forty-eight hours; of 105°, in four days; and of 103.5°, in seven days. We may not say of it that a high temperature is an effort of nature to destroy the cause of the disease—assuming these bacteria to be the cause—but that it is the nature of certain bacteria to develop in the body a high temperature which is fatal to their virulent properties.

The disease probably enters the body through the avenue of the lungs—diplococci have been found by Emmerich and Uffelman under floors and on the walls of houses—and is always local at first. Subsequent disseminations from the lungs may invade the meninges, endocardium, spleen, and kidneys, favorite localizations of the disease. Thus pneumonia is an acute infection—not in the sense of Juergensen, as a general disease with a local expression in the lungs—but as a local disease which may undergo resolution at any stage, or may become general in its later course.

But aside from all questions of etiology, clinicians had already come to the conclusion that a high temperature in pneumonia is not serious because the duration of the disease is so short. Perhaps we are justified in administering antipyretics only to secure comfort to the patient. The pulse is the main indication of gravity. A pulse over 120 in an adult is always of grave import. Fräntzel goes so far as to abandon all antipyretics, because they all affect the heart in greater or less degree. He advises hot water rather than cold in the relief of pleuritic pain, but gives alcohol regularly from the fifth day on. The true treatment of pneumonia at the present time consists in sustentation of the heart, by alcohol and digitalis, for seven to ten days, or until the disease process has run its course.

DR. N. S. DAVIS thought it a curious fact that the mortality in pneumonia of to-day is undoubtedly greater than that of forty-five years ago. If anything is established,

this very fact has so been by statistics gathered not in the hospitals only but among the population of the United States—city and country, in private and in general practice. As to the question of cold, it has been indubitably demonstrated that the disease prevails more during the winter than during the summer months. He referred to the statements made by a prominent Canadian physician in one of the early meetings of the Association of that Dominion, to the effect that during a practice of thirty years he had adopted three plans of treatment. During the first of the three decades the treatment consisted of bloodletting; the second decade constituted the transmission period from the bloodletting, antiphlogistic treatment to the expectant plan; and the third, the stimulant method. He found, in footing up the records, that the mortality was least during the first decade and greatest during the last. The speaker dwelt at some length upon the benefits derived from bloodletting during the first stage, followed by cardiac depressants during the subsequent twenty-four to thirty-six hours. He cited cases in illustration.

DR. VON KLEIN, of Dayton, Ohio, had, during service in the Russian army, found that pneumonia prevailed to a less extent in a climate in which the temperature averaged 50° below zero, than in our moderate climate. He believed in the judicious use of the lancet. He ascribed the increase in mortality to the fact that the people are not as robust as those of fifty years ago. They have changed as to the surroundings, habits, clothing, etc., and our treatment ought to be guided by the peculiarities of each case.

DR. OCTERLONY, of Louisville, took issue with Dr. Davis in regard to the increased mortality. During the time of bloodletting the mortality was one in five. During the time of mixed treatment, according to the statements of Skoda and Austin Flint, the results improved fifty per cent. J. H. Bennet, of Edinburgh, introduced the method of furthering the natural progress of the disease, with the result that the mortality was reduced to one in thirty-six. He had on former occasions defended the theory that pneumonia depended upon local causes, that the changes were local and that they were amenable to local treatment. But, impelled by more extended observations, he has become a convert to the theory of pneumonia being an essential, specific fever, due to a specific cause, probably the pneumococcus. He thought that a physician was rarely called to a patient during the first stage, but generally when exudation had already commenced.

DR. JENKINS, of Iowa, attributed the apparent increase in mortality to the improved facilities of diagnosis and the advances in our knowledge of pathology.

DR. BAILEY, of Louisville, advocated decidedly the use of stimulants, especially during the last stage.

Dr. F. C. SHATTUCK, of Boston, stated that although it is doubtful whether the increased temperature is a salutary and curative process, yet he thought that more attention should be paid to the condition of the pulse than that of the fever. During the past the influence of temperature in pneumonia has been overrated. He had discarded the systematic use of antipyretics in this disease. It is a febrile affection of short duration, and he believed that the use of antipyretics, especially at the approach of the crisis, is dangerous when the heart's action is enfeebled, and this plan of medication may cause dangerous collapse.

DR. VAN BIBBER, in conclusion, stated that he had received a letter from Dr. W. L. Welch, in which the following statement was made: "It is apparent that the evidence is not conclusive that either of the organisms is the infectious agent of croupous pneumonia, certainly no such evidence has been presented as that which leads us to accept the tubercle bacillus, the typhoid bacillus, or the cholera spirillum as the cause of the respective diseases."

DR. MORRIS H. HENRY, of New York, read a paper entiled

CLINICAL EXPERIENCE IN THE ADMINISTRATION OF IODIDE OF POTASSIUM IN THE TREATMENT OF SYPHILIS.

He prefaced his remarks with a few words on the value of mercury in the early, or what is termed the middle period of the evolution of syphilis. In the discussion of the subject proper he stated that the iodide may be administered in doses varying from 5 to 50 grains every four hours; 20 to 200 every twenty-four hours. He spoke of the value of the remedy in syphilitic rheumatism. The remainder of the paper dwelt upon the claims of various authors to the priority of the adoption of the treatment of late and inveterate lesions of syphilis by the administration of *large* doses of iodide of potassium.

NEWS ITEMS.

The Hygienic Protection of Railway Passengers during the Coming Summer.—Dr. Rauch, Secretary of the Illinois State Board of Health, addresses the following admirable circular, which should apply throughout the country, to the railway managers of Illinois:

The Board directs me to advise you that it is deemed desirable before the advent of warm weather to secure such care of railway stations and grounds and of railway travel, as may tend to improve the sanitary condition and comfort of passengers generally, and specifically to limit the danger of any epidemic contagious disease.

Although there seems to be no immediate cause for alarm as to Asiatic cholera, the germs of that disease still exist in some parts of Europe whence large numbers of immigrants are constantly arriving in this country; and it now prevails as an epidemic in Chili, Brazil, and probably elsewhere in South America. Until it has died out in the countries with which the United States has direct commercial intercourse, it will not be prudent to relax vigilance, nor to omit proper precautions.

We had a narrow escape last fall from the introduction of this disease, and there is no telling what may happen during the summer.

The cleanly condition of water-closets on cars and at stations, also of privies, and the purity of drinking-water supplies for passengers and employés are matters of the first importance in this connection. At many of the small stations the conditions which obtain in these respects are far from satisfactory. Where privies are used they should be kept clean by constant attention. Vaults should be emptied at proper intervals, the contents disposed of so as to prevent further nuisance, and efficient disinfectants should be freely and continually used. Explicit instructions on these points will be furnished by the Board whenever requested.

Interruption of railway travel and traffic may be prevented, and the comfort and welfare of the travelling public will be promoted by good sanitary conditions, and the Board will cheerfully coöperate with you to secure these ends.—*Sanitary News*, April 21, 1888.

The Berlin Exposition of Appliances for the Prevention of Accidents.—Minister Pendleton sends to the State Department from Berlin the translation of a letter which he has received from the Board of Directors of the German Universal Exposition for the Prevention of Accidents. The Exposition, which will be held from April to July, 1889, is to contain apparatus and appliances meant to protect workingmen against the dangers which threaten them in the industrial occupations, from the knowledge and introduction of which a reduction in the number of industrial accidents may be expected. It is added that the humanitarian views which prompt this exposition have won the full sympathy and support not only of the principal representatives of industry and agriculture in Germany, but also of the German Imperial and Royal Prussian State officials. The Exposition aims not only to promote a knowledge of the apparatus and appliances calculated to prevent accidents, but also to stimulate an interest in their further development and to furnish the inventors of similar protective contrivances an opportunity to demonstrate their practical utility. The Exposition will, therefore, have much of the character of an industrial exposition, differing only from the purely industrial expositions in that such articles only will be admitted whose whole aim or make has a demonstrable relation to the prevention of accidents. Such articles and appliances shall also be admitted which tend to the workingmen's protection and general welfare, and are, therefore, adapted to lead indirectly to a diminution of industrial accidents.

As the workmen and handicraftsmen of all lands have an equal concern in the decrease of accidents in the industrial occupations, there can be no doubt that this Exposition will also be of interest for other countries, especially as foreigners are allowed to enter exhibits. The Board of Directors respectfully beg Mr. Pendleton to make this projected undertaking known, in the manner that may seem most fit, among those whom it may concern, but especially among the makers and inventors of safety apparatus in the States whose government he represents.—*Sanitary News*, April 21, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM MAY 8 TO MAY 14, 1888.

MCKEE, JAMES, *Lieutenant-Colonel and Surgeon.*—Granted leave of absence for one month.—*S. O. 107, A. G. O.*, May 9, 1888.

GREENLEAF, CHARLES R., *Major and Surgeon.*—Detailed as a member of a Board of Medical Officers, to assemble at the U. S. Military Academy, West Point, N. Y., on June 1, 1888, to examine into the physical qualifications of members of the graduating class, and of the candidates for admission to the Academy.—*S. O 104, A. G. O.*, May 5, 1888.

O'REILLY, ROBERT M., *Major and Surgeon.*—Detailed as a member of a Board of Medical Officers, to assemble at the U. S. Military Academy, West Point, N. Y., on June 1, 1888, to examine into the physical qualifications of members of the graduating class, and of the candidates for admission to the Academy.—*S. O. 104, A. G. O.*, May 5, 1888.

SKINNER, JOHN O., *Captain and Assistant Surgeon.*—Detailed as a member of a Board of Medical Officers, to assemble at the U. S. Military Academy, West Point, N. Y., on June 1, 1888, to examine into the physical qualifications of members of the graduating class, and of the candidates for admission to the Academy.—*S. O. 104, A. G. O*, May 5, 1888.

Par. 11, S. O. 104, A. G. O., May 5, is amended by par. 4, S. O. 108, A. G. O., May 10, 1888: CHARLES R. GREENLEAF, *Major and Surgeon*, ROBERT M. O'REILLY, *Major and Surgeon*, and JOHN O. SKINNER, *Captain and Assistant Surgeon*, are detailed as a Board of Medical Officers, to assemble at the U. S. Military Academy, West Point, N. Y., on June 1, 1888, to examine into the physical qualifications of the candidates for admission to the Academy, and, in connection with the Superintendent of the Academy and Commandant of Cadets, of the members of the graduating class.

BROWN, HARVEY C., *Major and Surgeon.*—The leave of absence for seven days, granted by Orders No. 68, Fort Barrancas, Florida, May 2, 1888, is extended twelve days.—*S. O. 90, Division of the Atlantic*, May 8, 1888.

LORING, LEONARD V., *Captain and Assistant Surgeon.*—Granted leave of absence for three months, on surgeon's certificate of disability.—*S. O. 105, A. G. O.*, May 7, 1888.

BROWN, PAUL R., *Captain and Assistant Surgeon.*—Granted leave of absence for six months, on surgeon's certificate of disability, with permission to leave the Division of the Atlantic.—*S. O. 107, A. G. O.*, May 9, 1888.

BENHAM, ROBERT B., *Captain and Assistant Surgeon.*—To proceed from Fort DuChesne to Fort Douglas, Utah, and report to the commanding officer of that post, not later than the 26th inst., to accompany the battalion of the Sixth Infantry to Fort Lewis, Colorado. Upon completion of this duty, he will return to his station, Fort DuChesne, Utah.—*S. O. 33, Department of the Platte*, May 5, 1888.

APPEL, D. M., *Captain and Assistant Surgeon.*—Will be relieved from duty at Fort Davis, upon the arrival of Captain and Assistant Surgeon J. V. Lauderdale, and proceed to Fort Hancock, and report to the commanding officer of that post for duty.—*S. O. 49, Department of Texas*, May 5, 1888.

EDIE, GUY L., *First Lieutenant and Assistant Surgeon.*—Will proceed, not later than the 25th inst., to Fort Concho, and report to the commanding officer of the Eighth Cavalry for duty as Medical Officer, in compliance with par. 13, S. O. 99, c. s., Headquarters of the Army.—*S. O. 49, Department of Texas*, May 5, 1888.

CLENDENIN, PAUL, *First Lieutenant and Assistant Surgeon.*—Will be relieved from duty at Fort McIntosh, and proceed with the battalion of the Sixteenth Infantry from that post to San Antonio; from the latter point he will accompany the companies of the Sixteenth Infantry to their destination.—*S. O. 49, Department of Texas*, May 5, 1888.

WALKER, F. V., *First Lieutenant and Assistant Surgeon.*—Will be relieved from duty at Fort Ringgold, and proceed with Company "D," Sixteenth Infantry, to San Antonio; he will then report for duty to the commanding officer of the Post of San Antonio.—*S. O. 49, Department of Texas*, May 5, 1888.

HARRIS, H. S. T., *First Lieutenant and Assistant Surgeon.*—Will be relieved from duty at Camp Pena, Colorado, and proceed to Fort Davis, where, upon arrival, he will report to the commanding officer of the Eighth Cavalry for duty as Medical Officer with that regiment on its march to the Department of Dakota.—*S. O. 49, Department of Texas*, May 5, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING MAY 12, 1888.

CABELL, A. G., *Passed Assistant Surgeon.*—Detached from the U. S. Steamer "Adams," to proceed home, and wait orders.

SIMONS, M. H., *Surgeon.*—Detached from the Naval Academy, and ordered to the Practice Ship "Constellation."

HORWITZ, P. J., *Medical Director.*—Granted leave of absence for six months, with permission to leave the United States.

A Naval Medical Examining Board is now in session at the Naval Hospital, Philadelphia, for the examination of candidates for admission to the Medical Corps of the Navy. There are eleven vacancies in the list of Assistant Surgeons. Permits for examination can be obtained on application to the Secretary of the Navy.

THE MEDICAL NEWS.

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VOL. LII. SATURDAY, MAY 26, 1888. NO. 21.

ORIGINAL LECTURES.

THE CARTWRIGHT LECTURES.

ON THE GENERAL PATHOLOGY OF FEVER.

Delivered before the Association of the Alumni of the College of Physicians and Surgeons, New York, April 12, 1888.

BY WILLIAM H. WELCH, M.D.,

PROFESSOR OF PATHOLOGY, JOHNS HOPKINS UNIVERSITY, BALTIMORE.

LECTURE III.

THE ETIOLOGY OF FEVER.

(Concluded from page 544.)

We come now to the third and most important group of fever-producing agents, the pathogenic microörganisms. So overshadowing is their importance that it has been claimed that they are the sole causes of fever. In contrast with former times it is no longer the symptomatic fevers whose etiology is clearest. We have much more definite ideas as to the mode of production of some of the essential fevers which were once the most obscure, than we have of symptomatic fevers. It does not seem to me worth while to go over the chain of evidence which establishes the doctrine that the infectious fevers are caused by microörganisms. There is probably no one who has thoroughly investigated the subject, and is competent to form an opinion on it, who does not to-day admit that a number of infectious diseases have been proven to depend upon specific microörganisms, and that it is a logical inference that all infectious diseases are caused by parasitic organisms.

It is not germane to our subject to enter into a morphological or biological description of the different species of pathogenic organisms which are causes of febrile diseases. The only question which concerns us in this consideration of the general etiology of fever is how the microörganisms produce fever. Are they themselves the pyrogenic agents, or do they produce chemical substances which are pyrogenic? A number of other possibilities might be mentioned. These and similar questions have suggested themselves to investigators since the beginning of any knowledge of parasitic microorganisms. Our information is far from sufficient to enable us to answer these questions in a positive manner, and still we are not left wholly to vague surmises in attempting to form some sort of an opinion.

That bacteria can produce mechanical effects by plugging up capillaries and in other ways is certain, but the wide differences presented by the various infectious diseases cannot be reconciled with the idea that pathogenic bacteria act chiefly by mere mechanical interference with the fluid and the solid constituents of the body. Notwithstanding the fact that Stricker and Albert succeeded in producing fever by the injection of starch granules into the blood, probably no one will be inclined to attribute the pyrogenic activity of bacteria in any considerable extent to occlusion of bloodvessels.

In a certain number of infectious diseases, particularly of animals, bacteria are present in such enormous number in the blood and tissues that some are inclined to refer the disastrous effects of the organisms to the withdrawal of oxygen and other nutritive pabulum from the cells of the body. So far as the appropriation of oxygen is concerned, this idea is not supported by the results of most of the examinations of the blood in cases of anthrax. This explanation was more popular in the early days of bacteriology than it is at present, and at the best its value is limited, for it cannot be applied to a large number of infectious diseases, such as cholera or typhoid fever where the circulating blood is not largely invaded by the parasites. Furthermore, it is not clear how the appropriation by bacteria of nutriment intended for the tissues would help us to explain the production of fever.

It has been suggested that the increased temperature in infectious fevers may be explained by the heat produced by oxidation or other chemical changes in the microörganisms themselves. But this is not at all a satisfactory explanation. Not only is the quantity of heat which can come from this source in all probability very small compared with that constantly produced in the body, but such an explanation of febrile rise of temperature is not in harmony with what we know concerning the mode of production of fever (see Lecture I.).

The failure to explain the pathogenic power of bacteria in these and similar ways led to the supposition that the morbid activity of pathogenic bacteria is exerted chiefly by means of injurious chemical products. The demonstration of such products leaves no room for doubt as to the correctness of this supposition for some infectious diseases. This explanation is probable for most such diseases, but experience has shown that it is particularly dangerous to indulge in hasty generalizations in this department of medical science.

Sterilized and filtered cultures, particularly old cultures, of various pathogenic bacteria are capable of producing fever and other symptoms when injected into the blood or tissues. This, of course, makes it evident that the bacteria in question give rise to poisonous substances. It is necessary to distinguish between the intoxication produced by the injurious products of bacteria and the infection caused by multiplication of the microörganisms within the body. That this distinction may be readily overlooked is shown by the recent experiments with the inoculation into animals of pure cultures of the typhoid bacillus. Small quantities of these cultures may be inoculated without any apparent effect; if, however, larger quantities are injected into the veins or the peritoneal cavity of a rabbit, the animal dies in a short time

and the characteristic bacilli are found in the blood, spleen, and elsewhere. It was supposed by Fränkel and Simmonds,[1] to whom we owe this latter observation, that actual infection took place, but it has been demonstrated by Sirotinin and by Beumer and Peiper[2] that under these circumstances no multiplication of the injected bacilli occurs, and that the same results may be obtained by the injection of sterilized typhoid cultures.

The isolation in a chemically pure state of the poisonous products of pathogenic bacteria encounters great difficulties, and we owe to Brieger[3] nearly all that has been accomplished in this direction. Two substances which he has obtained from cultures of pathogenic bacteria are of great interest. Brieger isolated from pure cultures of the typhoid bacillus a very poisonous ptomaine or toxine, as he prefers to call this group of substances. He has given to it the name typhotoxine. It may be somewhat significant that he failed to find typhotoxine in a culture which had stood for twenty-four hours at a temperature of 102.2° F. (39° C.). The injection of typhotoxine into guinea-pigs produced great muscular weakness, diarrhœa, increased frequency of pulse and of respiration, and death. Nothing is said as to the effect upon the temperature of the animal.

A toxine has been isolated by Brieger in a crystalline form from an impure culture of the tetanus bacillus. This substance, called tetanin, produces, when injected into animals, the characteristic symptoms of tetanus.

It is evident that these important discoveries render far more definite than was formerly possible, the belief that bacteria produce fever by means of their chemical products.

A dangerous influence exerted by poisonous ptomaines is that under their agency the power of the body of resisting the invasion of various microörganisms may be impaired or overcome. Thus, Wyssokowitsch has shown that the immunity of some animals against certain species of bacteria may be destroyed by ptomaine poisoning.

In order to observe the effects upon the temperature, I have injected into rabbits sterilized cultures of the typhoid bacillus. Injections of very small quantities of these cultures produce no effects, somewhat larger amounts cause a rise of temperature without other marked symptoms, still larger quantities produce increased temperature, diarrhœa, weakness, and other manifest symptoms of severe illness, but the animal may recover; relatively large amounts are followed by fall of temperature, grave illness, and death. I have also obtained results similar to those of Sirotinin, who inoculated two rabbits with the same amount of a typhoid culture. In one rabbit fever developed and the animal recovered; in the other, the temperature fell after the injection, and the animal died. This certainly does not indicate that the rise of temperature in itself is an unwelcome attendant of intoxication with the poisonous products of bacteria. My experiments certainly showed that the animals were more likely to die after injection of typhoid cultures when the temperature fell than when it rose, independently of the quantity of material injected. One is reminded here of the very malignant cases of typhoid fever reported by Fräntzel, and others, in which the temperature throughout a great part of the disease was subfebrile, or even at times subnormal.

In no disease is the dependence of the febrile paroxysm upon the presence of bacteria so apparent as in relapsing fever, where, according to the statements of most, although not of all, observers the spirilla appear in the blood at the beginning of a paroxysm and disappear at the end. Whether or not, here and in malaria, the pyrogenic agent is a chemical product of the microörganisms causing the disease, we do not know.

I must content myself with having brought before you evidence showing that at least in some of the infectious fevers the specific bacteria produce pyrogenic substances. We have no right to say that this is the only way in which pathogenic bacteria can cause fever.

We have considered now three groups of agents concerned in the production of fever, viz.: first, unorganized ferments and other relatively homologous substances; second, ptomaines and other chemical products of saprophytic microörganisms; third, pathogenic microörganisms and their chemical products.

It is not to be understood that these groups correspond to sharply defined classes of fever-producing agents. The same substance may be produced by the action of unorganized ferments, as well as by saprophytic bacteria or by parasitic bacteria; hence, we may find the same fever-producing agent in each of the three groups. As has already been mentioned, our knowledge does not justify us in regarding these various substances as the immediate and direct pyrogenic agents. The epithet pyrogenic is applied to them only by a certain latitude of signification. It is possible that these various substances, which we are in the habit of describing as pyrogenic, may produce in the body some common change which gives rise to the real fever-producing agent. This is the view of von Bergmann and Angerer, who believe that this common change is a liberation of fibrin ferment by destruction of leucocytes. While we cannot consider this view as more than an hypothesis, it is, nevertheless, well to remember that apparently heterogeneous substances, which are usually designated as pyrogenic, may produce similar changes which are to be regarded as the real source of the febrile disorder of animal heat. But, notwithstanding these limitations and these elements of uncertainty, it seems to me that some such classification as that suggested of the agents producing fever is more useful than that usually employed in the discussions of the etiology of symptomatic and of essential fevers.

There is one point which must be impressed upon every one who makes many experiments with pyrexial agents. This is, that once in a while a substance of undoubted pyrogenic power causes a fall instead of a rise of temperature. This occurs frequently when the substance is injected in large quantity and under these circumstances there is usually produced a condition of collapse. But in exceptional cases the same dose which will cause in one animal a rise of temperature may give rise in another animal of the same species to a distinct reduction of temperature. In these latter cases there must be some idiosyncrasy on the part of the animal. Aronsohn[1] refers this unusual phenomenon to some peculiarity of

[1] Fränkel and Simmonds: Die Ætiologische Bedeutung des Typhus-bacillus, Hamburg und Leipzig, 1886.

[2] Sirotinin: Zeitschrift f. Hygiene, Bd. i. 465.
Beumer u. Peiper: Ibid., p. 489.

[3] Brieger: Untersuchungen über Ptomaine, Berlin, 1886.

[1] Aronsohn: Deutsche med. Wochenschrift, 1888.

the heat centres in the brain, and he draws an interesting parallel between this contrary effect of pyrogenic substances and the exceptional cases in which antipyretic drugs give rise to elevation instead of lowering of temperature.

The causes of fever which we have thus far discussed, have been substances which exert a pyrogenic effect when introduced into the circulation. We suppose that these substances act in some way upon the nervous system, but whether or not this action is a primary one it is impossible to say. Even if we assume, as is often done, that these substances incite directly in the blood and tissues chemical changes which lead to increased production of heat, we must still have recourse to some action upon the nervous system, as has already been sufficiently set forth in the previous lectures.

It cannot be doubted that fever may be caused by other agencies than pyrogenic substances present in the blood or tissues. The effects of exposure to external heat have already been considered. We found experimental evidence in support of the view ably advocated by H. C. Wood, that in typical cases of thermic fever or sunstroke, the strain placed upon the heat-regulating centres by exposure to excessive heat results in paralysis of these centres with rapid elevation of the internal temperature.

The cause of the elevation of temperature in tetanus is not altogether clear. In this disease the temperature may vary but little from the normal, but it is not uncommon to find excessive elevations of temperature toward the termination. Temperatures of 113° F. (45° C.), or more, have been recorded. The idea would naturally suggest itself that the rise of temperature is due to the tetanic muscular spasms, which we know to be accompanied by production of heat. Leyden was led to adopt this explanation by the results of experiments made upon animals. He succeeded by producing violent tetanic contractions of the muscles of a dog, in raising the internal temperature in the course of one hour and a half from 103.3° F. (39.6° C.) to 112.6° F. (44.8° C.). Clinical observations, however, do not support the supposition that the hyperpyretic temperatures of tetanus are dependent upon the muscular contractions. In spite of violent and prolonged tetanic spasms, the internal temperature may remain normal or be but slightly elevated. There is a decided similarity between the hyperpyrexia of tetanus and that which occurs in rheumatism and some other diseases, particularly in affections of the central nervous system, and it certainly seems probable that in all of these cases there is a profound disturbance of the heat-regulating centres. As the elimination of urea in tetanus is not excessive, we find additional reason to separate tetanic hyperpyrexia from ordinary febrile conditions. Recent investigations of the etiology of tetanus, have rendered it certain that at least some forms of this disease are caused by infection with a special microorganism. This has been demonstrated not only in the tetanus of animals but also in that of human beings. The tetanus bacillus has been found wide-spread in the ground in Germany, and I find it abundant in the ground in Baltimore and its neighborhood. In experimental tetanus, the bacillus, which has not yet been obtained in perfectly pure cultures, develops chiefly in the tissues near the seat of inoculation, and does not invade other parts of the body and the blood to any great extent. This indicates that the symptoms are referable chiefly to poisoning by some chemical products of the specific microörganism. As has already been mentioned, this view is sustained by Brieger's discovery in cultures containing the tetanus bacillus of a peculiar ptomaine which he has called tetanin, and which produces tonic spasms of the muscles. It is, therefore, reasonable to believe that the hyperpyrexia of tetanus is caused by the action of poisonous products of the tetanus bacillus on the nervous centres concerned in temperature regulation. Our present knowledge, however, does not warrant us in asserting that all forms of tetanus in human beings are of an infectious nature.

In the first lecture of this course, evidence was presented to show that pyrexia may be caused by affections of the nervous system without the agency of any pyrogenic substance. It may jar upon the sensibilities of some to call this form of pyrexia fever; but this hesitation can be due only to the idea that symptoms which are referable to infection or intoxication are essential to the conception of fever. In my judgment, we shall be led into confusion if we attempt to incorporate into our definition of fever, more than properly belongs to the febrile disorder of animal heat, and from this point of view there can be no impropriety in designating as fever, the pyrexia dependent directly upon affections of the nervous system.

It is not necessary to repeat here the conclusive experimental evidence for the existence in the nervous system of centres or regions which control the dissipation of heat and the chemical processes concerned in the production of heat. Those who are not much impressed by experiments upon animals, can hardly fail to be convinced by the clinical evidence which demonstrates that lesions of the nervous system may cause elevation of temperature, which cannot be referred to the action of any pyrogenic substance. Such evidence must, of course, be collected from cases where the fever cannot be explained by inflammation, bed-sores, or other lesions which can give rise to absorption fever. W. Hale White,[1] in the interesting article already referred to, has collected a number of cases of tumor, hemorrhage, softening, sclerosis, injury and functional disturbance of the spinal cord and brain, in which the pyrexia or hyperpyrexia is to be explained only by the lesion of the nervous system. The number of such cases might be considerably increased. These cases show that lesions of the cervical part of the cord, of the pons, of the corpus striatum, and of the neighboring white matter, are most likely to be associated with high temperature, but the cases hitherto reported hardly justify positive statements as to the exact situation in man of thermically active nerves or regions in the brain and spinal cord. As might be expected, not only focal lesions, but also diffuse diseases such as occur in general paralysis of the insane, locomotor ataxia, multiple sclerosis may give rise to pyrexia which sometimes assumes the form of temperature crises. It is in harmony with what we know of other disorders of the nervous system, to find that not only demonstrable anatomical lesions, but also functional disturbances may produce nervous pyrexia. Such functional disturbance furnishes the most probable explanation of the singular

[1] W. Hale White: The Theory of a Heat Centre from a Clinical Point of View. Guy's Hospital Reports, vol. 42, 1884.

and erratic elevations of temperature which have been occasionally observed in hysteria.

A question which merits more consideration than it is possible to give to it on the present occasion, relates to the possibility of the occurrence of fever as a reflex neurosis. The advance in our knowledge of the etiology of traumatic and inflammatory fevers, has pushed aside almost wholly the old doctrine of irritative fever. There are, however, cases of fever where still the simplest, and apparently most rational, explanation of the causation, is peripheral nerve irritation. As examples may be mentioned, the fever resulting from teething in children, that sometimes accompanying the passage of gall-stones or urinary calculi, and that occasionally following the insertion of a catheter into the urethra. It must be admitted that the evidence on this point is not conclusive. Especially is there lack of satisfactory experimental evidence. Electrical irritation of the exposed sciatic nerve is, under ordinary circumstances, followed by a moderate fall of temperature, although Ott[1] finds that in atropinized cats such irritation is followed by a decided rise of temperature. But these experiments cannot be held to weigh for or against the doctrine of irritative fever. Observations on human beings indicate that peripheral nerve irritation, if ever a cause of fever, is so only in certain situations and under certain forms of stimulation, and in certain individuals. In infants temperature regulation is more labile than in adults, so that it may be that nerve irritation can more readily disturb the temperature in the former than in the latter. The chief controversy as to the question now before us, has been as to the explanation of certain forms of urethral or catheter fever. It cannot be doubted that a large number, probably most, of the cases of so-called urethral fever, are instances of genuine absorption fever. Even if we exclude all cases with diseased kidneys, or with cystitis or other inflammatory disease of the urinary passages, there remains a certain number of cases in which the gentle insertion of a disinfected catheter is followed by distinct febrile reaction. It seems unwarrantable to assume that in all of these cases the catheter has caused a laceration of the urethra through which pyrogenic substances are absorbed. What is the nature and whence the source of these substances? In the cases now under consideration, they can be sought only in the normal urine, and of their existence there no proof has been afforded. In these cases it is certainly very difficult to understand how the fever can be interpreted as due to the absorption of some pyrogenic agent, and failing this explanation, the idea that the fever is dependent upon nerve irritation is most plausible.

I have now presented to you an imperfect survey of the general etiology of fever. The attempt has been made to classify the leading causes of fever, but it cannot be claimed that every variety of fever can be assigned to one of these groups of causes. Our knowledge of the etiology of special fevers is still too imperfect to warrant any such generalization. This is an attractive field for much patient investigation. I need only remind you of the uncertainty which still pertains to the causation of many of the fevers of warm countries. There is reason to believe that there remain yet to be differentiated etiologically, specific types of fever which occur among us, and particularly in our Southern States. It may be, that increasing knowledge will necessitate the recognition of varieties of pyrogenic agents entirely distinct from any with which we are now familiar. It is certain that future investigations will add clearness and precision to our ideas of the nature and mode of action of causes of fever which, at the best, we can now understand only imperfectly.

I cannot conclude this course of lectures without saying a few words on a subject which must engage the attention of every one who gives much thought to the nature of fever. What is the significance of fever, is a question which thrusts itself upon us no less than it has upon physicians in all ages. Unfortunately, we cannot to-day, any more than could our predecessors, give other than a speculative answer to this question. There have been in all ages enlightened physicians who have held the opinion that fever is a process which aids in the elimination or destruction of injurious substances which gain access to the body. Under the influence of ideas which sought in increased temperature the origin of the grave symptoms of fever, we have in recent times in great part lost sight of the doctrine once prevalent, that there may be in fever a conservative element. There is much which speaks in favor of this doctrine. The real enemy in most fevers, is the noxious substance which invades the body, and there is nothing to prevent us from believing that fever is a weapon employed by nature to combat the assaults of this enemy. The doctrine of evolution indicates that a process which characterizes the reaction of all warm-blooded animals against the invasion of a host of harmful substances, has not been developed to so wide an extent, and is not retained with such pertinacity without subserving some useful purpose. This is a point of view from which many pathological processes can be regarded with advantage. Even suppuration, which one does not generally look upon as a beneficent provision, is a most important instrument of nature in forming a barrier against general infection of the body with certain microörganisms. It is impossible with our present knowledge, to say in exactly what way fever accomplishes a useful purpose. There are facts which suggest that in some cases of fever the increased temperature as such may impair the vitality or check the virulence of pathogenic microörganisms, but there are many circumstances which make it difficult to suppose that this is the agency by which fever usually exerts a favorable action.

The supposition seems to me more probable that the increased oxidation of fever aids in the destruction of injurious substances. According to this view, the fever-producing agents light the fire which consumes them. It is not incompatible with this conception of fever, to suppose that the fire may prove injurious also to the patient and may require the controlling hand of the physician. Time will not permit me to elaborate further the ideas here suggested. In the course of these lectures some facts have been presented and others might be drawn from clinical and experimental observations which favor the hypothesis that fever is in a certain sense a conservative process. Unproven and intangible as the hypothesis may seem to some, no apology is needed for bringing to your attention a conception of fever in favor of which much can be adduced, and which, if true, is of fundamental importance, both theoretically and practically.

[1] Ott: Therapeutic Gazette, August, 1887.

ORIGINAL ARTICLES.

RECTAL INSUFFLATION OF HYDROGEN GAS AS AN INFALLIBLE TEST IN THE DIAGNOSIS OF VISCERAL INJURY OF THE GASTRO-INTESTINAL CANAL IN PENETRATING WOUNDS OF THE ABDOMEN WITHOUT LAPAROTOMY.[1]

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THE operative treatment of penetrating wounds of the abdomen complicated by visceral injury of the gastro-intestinal canal is now sanctioned by the best surgical authorities and may be considered as a well-established procedure based, as it is, upon experimentation and clinical experience. A visceral wound of the stomach or any part of the intestinal canal sufficient in size to give rise to extravasation into the peritoneal cavity must be looked upon as a mortal injury, unless promptly treated by abdominal section. A number of well-authenticated cases are on record where a wound in the stomach, or large intestine, healed, and the patients recovered without the intervention of surgery, but these instances are so few that practically the force of the preceding statement remains unimpaired.

Visceral injury of the stomach or intestines rarely gives rise to symptoms upon which the surgeon could rely in making a positive diagnosis. In the treatment of penetrating wounds laparotomy is resorted to either for the purpose of, 1, arresting dangerous hemorrhage, or, 2, detection and treatment of a wound or wounds of its hollow viscera. The first indication is readily recognized, and the diagnosis not only justifies the operation, but imposes it as a stern duty upon the surgeon, from which he should never shrink. The recognition of the second indication offers greater difficulties, and the uncertainty of diagnosis which surrounds such cases is used as a sufficient argument by many in opposing the adoption of timely and efficient surgical treatment, and is responsible for the loss of many lives which might otherwise have been saved. The uncertainty of diagnosis must remain in the way of a more general adoption of laparotomy in the treatment of penetrating wounds of the abdomen treated by timid surgeons, and may lead to important medico-legal complications in the practice of bolder and more aggressive operators.

It is apparent that if some infallible diagnostic test could be applied in cases of penetrating wounds of the abdomen which would indicate to the surgeon the presence or absence of visceral lesions of the gastro-intestinal canal, the indications for aggressive treatment would become clear, and the medico-legal responsibility of the operator would be reduced to a minimum. As we can never expect by the study of symptoms, or by the ordinary physical examination, to fill this gap, I was induced to search for some reliable test which in such cases should prove that the penetrating bullet or instrument had injured the gastro-intestinal canal. It occurred to me that a wound in the stomach or intestine should be sought for in some such way as the plumber locates a leak in a gas-pipe. The first object to be accomplished was to prove the permeability of the entire gastro-intestinal canal to inflation of air, and the next step was to find some innocuous gas, which when inflated would escape from the intestinal wound into the peritoneal cavity, and from that through the external wound, where its presence could be proved by some infallible test. Numerous investigators of this question have come to different conclusions, particularly as to the permeability of the ileo-cæcal valve. We should *à priori* expect that air and gases, on account of their lesser weight and greater elesticity than water, could be forced along the intestinal canal with less force, and for that reason alone, if for no other, should be preferred to water in cases where it appears desirable to distend the intestine above the ileo-cæcal valve.

I made a set of experiments, twenty-six in number, to demonstrate the permeability of this orifice to gases without rupture or injury of any of the coats of the intestine. I next demonstrated the safety of the procedure as a diagnostic and therapeutic measure, by showing that the resistance of different portions of the gastro-intestinal canal was about the same, and everywhere greater than was necessary for the forcing of the gas into all portions of the tract. This was established by a large number of experiments, using the manometer or mercury gauge to determine the exact degree of pressure. A number of experiments were also made to demonstrate the ability to distend the gastro-intestinal canal by rectal insufflation of hydrogen gas, preliminary to the practical application of the hydrogen-gas test as a diagnostic measure in penetrating wounds of the abdomen. These furnished only so many more demonstrations of the permeability of the ileo-cæcal valve and the entire alimentary canal to rectal inflation of hydrogen gas. Many of these experiments were practised upon the human being.

Experiment LI. is particularly interesting. "I was desirous of experiencing myself the sensations which would be caused by inflation of hydrogen gas, and therefore submitted myself to experimentation. Under a pressure of one-half pound, nearly one and a half gallons of gas were inflated per rectum. The distention of the colon caused simply a feeling of distention along its course; but as soon as the gas escaped into the ileum, colicky pains were experienced, which increased as insufflation advanced, and

[1] An abstract of a paper read before the Surgical Section of the American Medical Association, May 9, 1888.

only ceased after all the gas had escaped, which was only the case after an hour and a half. When the intestines and stomach had become fully distended, the feeling of distention was distressing, and was attended by a sensation of faintness which caused a profuse, clammy perspiration. A great deal of the gas escaped by eructation, which was followed by great relief."

The colicky pains which attend inflation of the small intestine by air or gas are always caused by the peristaltic action of the bowels in their attempt to expel their contents, as they always assume an intermittent type, and subside promptly after the escape of the gas. In none of the experiments did the pressure exceed a pound. The escape of the gas through the ileo-cæcal valve, after distention of the colon, was easily recognized in every instance by a reduction of the pressure as well as by the auscultatory signs heard most distinctly over the ileo-cæcal region.

The experiments also demonstrated the fact that inflation of the intestinal tract, in order to be safe and effective, must be done *very slowly*, under a low, steady pressure, which will accomplish a great deal more than a higher pressure continued for a short time, and is attended by no risks whatever of causing rupture of a healthy intestine; and when cautiously practised can be resorted to, even in cases where the resisting power of the intestinal wall has been diminished by antecedent pathological processes.

The experiments further demonstrate the innocuous character of pure hydrogen gas upon the tissues of the body, since in none of them were any immediate or remote toxic effects produced. A number of experiments were made for the purpose of demonstrating the innocence of this gas, as well as its non-irritating character when brought in contact with living tissues, and also that the gas is promptly removed by absorption.

A set of experiments were finally made for the purpose of demonstrating the applicability of the rectal insufflation of hydrogen gas as a diagnostic measure in perforation of the intestine by gunshot wounds of the abdomen. They proved an infallible test in every instance. Contrary to the experience of other investigators, I found that fecal extravasation does not uniformly take place soon after gunshot wounds of the intestines, and in the cases where I observed it, some part of the colon had been wounded. Intestinal inflation, I therefore conclude, does not tend to increase the liability to this accident, and must, therefore, be looked upon as a harmless measure in this direction. Inflation as a preliminary measure greatly expedites the first step in the operation of abdominal section in cases where the intestine has been perforated or injured, as the gas which escapes into the peritoneal cavity separates the intestine from the anterior abdominal wall, and the incision can be made safely and rapidly without fear of wounding the intestine.

In order to guard against the accidental overlooking of a perforation after one or more openings have been closed, I think it advisable again to practise insufflation.

After a careful study of the subject of rectal insufflation of hydrogen gas in its various aspects, I do not hesitate to recommend its adoption in practice as an infallible diagnostic test in demonstrating the existence of a wound of the gastro-intestinal canal in penetrating wounds of the abdomen without resorting to an exploratory laparotomy.

In conclusion, I submit for discussion the following propositions:

1. The entire alimentary canal is permeable to rectal insufflation of air or gas.

2. Inflation of the entire alimentary canal from above downward, through a stomach tube, rarely succeeds, and should, therefore, be resorted to only in demonstrating the presence of a perforation or wound of the stomach, and for locating other lesions in the organ or its immediate vicinity.

3. The ileo-cæcal valve is rendered incompetent and permeable by rectal insufflation of air or gas under a pressure varying from one-fourth of a pound to two pounds.

4. Air or gas can be forced through the whole alimentary canal, from anus to mouth, under a pressure varying from one-third of a pound to two and a half pounds.

5. Rectal insufflation of air or gas, to be both safe and effective, must be done *very slowly and continuously*.

6. The safest and most effective rectal insufflator is a rubber balloon large enough to hold four gallons of air or gas.

7. Hydrogen gas should be preferred to atmospheric air or other gas for purposes of inflation in all cases where the procedure is indicated.

8. The resisting power of the intestinal wall is nearly the same throughout the entire length of the canal, and in a normal condition yields to a diastaltic force of from eight to twelve pounds. When rupture takes place, it either occurs as a longitudinal laceration of the peritoneum on the visceral surface of the bowel, or as multiple ruptures from within outward at the mesenteric attachment.

9. Hydrogen gas is devoid of toxic properties, non-irritating when brought in contact with living tissues, and is rapidly absorbed from the connective-tissue spaces and all of the large serous cavities.

10. The escape of air or gas through the ileo-cæcal valve from below upward is always attended by a blowing or gurgling sound heard most distinctly over the ileo-cæcal region, and by a sudden diminution of pressure.

11. The incompetency of the ileo-cæcal valve is caused by a lateral and longitudinal distention of the cæcum, which mechanically separates the margins of the valves.

12. In gunshot or punctured wounds of the gastro-intestinal canal, insufflation of hydrogen gas enables the surgeon to determine positively the existence of a visceral injury without the risks and medico-legal responsibilities incident to exploratory laparotomy.

ILLUSTRATIONS OF BLOODY DISCHARGES FROM THE UTERUS OTHER THAN NORMAL MENSTRUAL, AND THE IMPORTANCE OF PHYSICAL EXAMINATION IN THEIR DIFFERENTIATION.[1]

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IF we glance over the long list of uterine disorders which we find recorded in the text-books, we will notice that there are few of these which are not, at some period in their course, associated with a bloody discharge. Now, an escape of blood from the uterus, whether of greater or less intensity, a sudden gush, or the *stillicidium uteri*, which gives rise to a reddish-brown leucorrhœa, should, as we know, always be looked upon with suspicion; for while in some cases it may have no particular significance as regards local disease, in the majority of instances it is indicative of pathological changes taking place in the uterine tissue or mucosa. The tendency of most patients is to ignore or underestimate the importance of an inter-periodic loss of blood, and particularly if the hemorrhage seems to be only a prolongation of the normal menstrual flow, or appears as a dull, rusty leucorrhœa. Such patients are more likely to appeal to the physician on account of the effects of the blood loss—diminished strength, loss of color, etc.—than because of the condition itself. The bleeding is, however, a signal of danger, which, in most instances, may be averted by timely aid: but if the patient neglects the warning, and awaits a more positive demonstration of actual disease, the advent of the latter may be but the assurance that the disease has accomplished its work, and all efforts on the part of the physician thereby rendered futile. It is, therefore, incumbent upon the practitioner that no case of bloody discharge from the uterus be passed over lightly, but that in every instance active measures be undertaken to find out the cause, and relieve the condition.

Except in the case of very young girls, uterine hemorrhage demands a physical examination, and this should always be insisted upon. Nothing is more harmful to the patient than dosing with astringents to stop the bleeding, when we are in total ignorance of the cause. A hemorrhage which has been going on for months or years, the sufferer meantime ruining digestion and the secretory functions by the internal remedies taken, may frequently be almost instantaneously stopped by a simple operative procedure, demanding perhaps no longer than five minutes in its execution.

Although a bloody discharge may take place from the uterus at any time between the periods of puberty and the complete cessation of the menstrual function, and even after, a goodly proportion of these cases are seen at or about the time of the menopause. This time of life being characterized by degenerative or retrograde metamorphoses in the sexual organs, it is particularly liable to morbid changes in those organs, which may either tend to the destruction of life or to great future suffering and annoyance of the individual. Possibly these conditions, occurring as they are apt to at a definite period of life, may be classed with other obstacles, which, in the struggle for existence, serve as a check on over-population.

If we group a number of typical cases, occurring at the climacteric, and presenting symptoms not dissimilar, we can appreciate better the importance of a bloody discharge at this time, and the necessity of careful and thorough physical examination.

CASE I.—Mrs. B., aged fifty-one, a large, well-nourished, American woman, and the mother of several children. Menstruated last five months since. Excepting a slight bronchial affection of recent date, she has always enjoyed good health. During the morning of the day on which I was called, she expressed herself as feeling nervous, and having a fulness of the head, associated with dizziness. I found the patient on her back in bed, with the knees drawn up over the abdomen, cold, pale, and perspiring freely; the breathing short and quick, the countenance indicating great suffering. There was a profuse flow of blood from the genitals.

CASE II.—Mrs. H., German, aged fifty-two, mother of four children. For the past six months patient has had a "starchwater" discharge, which, on drying, leaves the napkins worn stiff. This discharge is followed each day by a slight loss of blood. There is more or less pain.

CASE III.—Mrs. C., American, aged fifty-two. Seen in consultation with Dr. Hamilton, of Tecumseh. Menopause two years since. Family history of cancer. One year ago the flow returned and was put down to "change of life." Three months later hemorrhage again occurred, and there was a regular loss of blood for two months. Following this the flow appeared every three or four weeks, and then every two or three weeks, such being the condition when I saw her. Pain is present, but is not a prominent symptom.

CASE IV.—Mrs. C., French, aged fifty-one. Kindly referred to me by Dr. S. P. Duffield. Patient has had two children; no abortions. For two or three years past there has been an irregular bloody

[1] Read by invitation before the Pere Marquette Medical Society, Michigan, May 8, 1888.

discharge from the uterus, which of late has been associated with a thick white discharge in which occasional pieces of a "skin-like material" were found. Patient is confined to bed, is weak and exsanguinated. There is considerable pain and soreness across lower portion of abdomen.

Case V.—Mrs. McG., Irish-American, aged thirty-eight. Seen in consultation with Dr. H. A. Cleland. Patient has been married for thirteen years, but has remained unfruitful. Menstruation, which has of late been very profuse, has recently been almost a continuous flow, only a week or ten days intervening between the periods. Patient is much debilitated. Pain, very severe at times, over lower portion of abdomen.

Case VI.—Mrs. B., American, aged fifty-seven. Seen in consultation with Dr. George P. Andrews. Menopause four or five years ago. For several years she has suffered from metrorrhagia, and watery discharge. At the date of my first visit, the patient was very pale, weak, and confined to bed the greater part of the time. There is a sense of uneasiness and discomfort, but not much pain, referable to the pelvis.

Here we have a series of cases occurring in women at about the same period of life, and presenting analogous symptoms, viz., loss of blood from the genitals, and pelvic pain or discomfort. From a careful history of these cases, experience may enable us to make a provisional diagnosis, but the symptoms of all are so similar that nothing but a careful physical examination will reveal the true conditions present, and if we give the menopause credit for the conditions, and attempt to cure, or even alleviate the patient's sufferings by the administration of internal remedies, we are worse than blind leaders of the blind, and certainly deserve to meet the reward of falling into the ditch.

In Case I. we have one of those explosions which sometimes occur during the climacteric. There is an attempt on the part of nature to rid the system of a certain amount of blood, which might otherwise prove a source of real danger, and like a nose-bleed at certain ages, possibly prevents so untoward an accident as cerebral hemorrhage. Barnes explains this condition very aptly when he says: "It is remarkable, that, as a result, probably, of the disposition which the uterus has acquired of acting as a periodical evacuant, long after the cessation of menstruation proper, it still continues to be the safety valve by which vascular repletion or tension is relieved."

It is a curious fact that this condition is sometimes seen in old women after ovariotomy. In one of my patients, sixty-three years old, from whom I removed a large double ovarian multilocular cyst, and who had not menstruated for ten years, quite a profuse bloody discharge from the uterus set in on the twenty-fourth day after the operation, and continued several days.

Case II. proved to be a simple pedunculated fibroid about the size of a hen's egg, readily removed, and with the resulting speedy cure of the patient.

Case III., an epithelioma of the cervix, presented on physical examination the usual characteristics of these growths at an early stage, and was probably at that time curable.

In Case IV., a positive diagnosis between sloughing fibroid and carcinoma or sarcoma could only be made after microscopical examination. It proved to be sarcoma.

Case V., in many respects similar to that just mentioned, turned out to be a fibroid involving the whole fundus uteri; while Case VI. was a double ovarian tumor, which I afterward removed. In this case there was also a small intra-mural fibroid, which almost disappeared under treatment, so that at the operation the uterus only appeared considerably thickened in its posterior wall.

Small fibroids of the submucous variety often exist without the patient's knowledge, as no symptoms are present.

In a case recently seen with Dr. C. G. Jennings, a tumor the size of a goose's egg, situated on the right horn of the uterus, was not discovered until the five months' pregnant womb made it apparent as a lump in the side. In another case which I delivered two years ago, three of these small fibroids were present on different portions of the womb, but had never caused the slightest inconvenience.

Illustrations of this class of bloody discharges from the uterus might be multiplied, but without further discussion of these, I desire to call attention to another group of cases in younger women, the symptoms of which are also similar.

Case VII.—Miss R., a pale, anæmic girl, aged twenty-three, with a family history of phthisis; has had a bloody discharge midway between the menstrual periods for two years past, which at present leaves her only for a few days during the month. There is no particular pain, but the constant drain on the system is exhausting her.

Case VIII.—Miss C., American, aged sixteen; referred to me by Dr. Cleland, began to menstruate a little over a year ago, and has continued to lose blood at irregular intervals since, the flow varying greatly in amount. Three weeks before my visit she had flowed continuously for over two weeks, and as a result was looking pale and pasty. There was no pain attending the flow.

Case IX.—Mrs. H., American, thirty-two years old. The mother of two children; suffers from extreme menorrhagia, as a result of which she is very weak, and unable to walk or assist herself. There is no pain.

Case X.—Miss F., American, aged thirty-one; began two months ago to have considerable spasmodic pain in lower portion of abdomen, running down to the feet, and attended by backache, nausea,

vomiting, and general malaise. She has had eight of these attacks, but is now feeling fairly well. For six weeks there has been a slight bloody discharge from the uterus, the amount lost increasing with the advent of the distressing symptoms noted.

Here, again, we have four cases presenting much the same symptoms, but differing widely in their physical conditions.

Case VII. was diagnosed as *endometritis fungosa hemorrhagica*, and two curettings during the year removed a considerable quantity of granulations from the cavum uteri. The family history gave rise to the suspicion of tuberculosis, but careful microscopical examination of the granular material removed, failed to reveal the familiar bacillus. I am quite certain that in this case the climate had much to do in the causation of the uterine congestion, for after a summer at the seaside, with change of diet (sea food), and salt-water bathing, the young lady has had no further return of the old trouble.

The hemorrhage in Case VIII. was due to the presence of a small varicose tumor in the left labium major, which, by keeping up a continuous irritation, determined a larger quantity of blood than normal to the parts. Removal of the dilated vessels caused a disappearance of the symptoms, and menstruation became regular and normal in amount.

In Case IX. we have a condition which, I believe, is very frequently overlooked by the practitioner, namely, a menorrhagia resulting from an old and deep cervical laceration. The relief to the patient following the operation for the restoration of the uterine neck was immediate and gratifying.

Case X. differed slightly from the other in having a history of previous pain. It was one of those obscure cases of retro-uterine hæmatocele which are often so puzzling to the diagnostician.

In the foregoing remarks I have briefly attempted to show the close similarity in symptoms manifested by very different conditions affecting the uterus. Many other causes of hemorrhage more familiar, as metritis, subinvolution, etc., might have been added, but sufficient has been said to indicate the great importance of physical examination in the diagnosis of those conditions before treatment can be intelligently inaugurated.

83 Lafayette Avenue, Detroit.

MEDICAL PROGRESS.

The Administration of Medicines to Children.—Jacobi writes as follows, on this point, in the *Archives of Pediatrics* for May, 1888: In the administration of medicines excitement on the part of the patient must be avoided; the nervous system of infants and children loses its equilibrium very easily. Fear, pain, screaming, and self-defence lead to disturbances of circulation and waste of strength. Preparations for local treatment or the administration of a drug must be made out of sight, and the latter ought not to have an unnecessarily offensive taste. The absence of proper attention to this requirement has been one of the principal commendations of "homœopathy," whatever that may have been the last twenty-five years. Still, the final termination of the case and the welfare of the patient are the main objects in view, and the choice between a badly tasting medicine and a fine-looking funeral ought not to be difficult. In every case the digestive organs must be treated with proper respect; inanition is easily produced, and vomiting and diarrhœa must be avoided. The most correct indications and most appropriate medicines fail when they disturb digestion; it is useless to lose the patient while his disease is being cured.

The administration of a medicament is not always easily accomplished. Indeed, it is a difficult task sometimes, but one in which the tact or clumsiness of the attendants has ample opportunities to become manifest. For "when two do the same thing, it is by no means the same thing." Always teach a nurse that a child cannot swallow as long as the spoon is between the teeth; that it is advisable to depress the tongue a brief moment, and withdraw the spoon at once, and that now and then a momentary compression of the nose is a good adjuvant. That it is necessary to improve the taste as much as possible need not be repeated. Syrup will turn sour in warm weather, glycerine and saccharin keep; the taste of quinine is corrected by coffee (infusion or syrup), chocolate, and "elixir simplex," a teaspoonful of which, when mixed each time before use, suffices to disguise one decigramme —one and a half grains—of sulphate of quinia. Powders must be thoroughly moistened; unless they be so, the powder adhering to the fauces is apt to produce vomiting. Capsules and wafers are out of the question, because of their sizes; pills, when gelatine-coated, or otherwise pleasant and small, are taken by many. The rectum and nose can be utilized for the purpose of administering medicines in cases of trismus, cicatricial contraction, or obstreperousness. Both of these accessories it may become necessary to resort to for weeks in succession.

Oertel's Treatment of Heart Disease.—The *British Medical Journal* of April 21, 1888, reports the discussion on this subject at the recent German Medical Congress as follows: Professor Oertel (Munich), whose method has attracted so much attention, both at home and abroad, since the cure of Prince Bismark by Dr. Schweninger (hence falsely "Schweningercur"), opened the discussion on the treatment of chronic diseases of the heart-muscle. After stating that, in his opinion, Stokes, who first introduced this method, had not found any followers, he said that it had first been employed in Germany by himself, with great success on a relative of his own, who suffered severely from weakness of the heart-muscle in 1875. During the following nine years he endeavored to give a scientific basis to this mode of treatment by experiments on animals and observations on men, which are to be found in his book *Therapie der Kreislauf Störungen*. He had, however, reconsidered his position, and recognizing that his treatment was not equally suitable for all cases, he would exclude from it advanced atheroma and grave incompetence of the heart-muscle. By a combination of an appropriate diet (animal food containing little water) and exercise obtained by the gradual ascent of

mountains (Terraincur), he obtained the following results: 1, diminution of the quantity of fluid in the body, and removal of the condition which he had termed "serous plethora;" 2, oxidation of the fat; 3, compensation between the arterial and venous system; 4, strengthening of the heart-muscle. This method, he said, ought not to be employed when the dyspnœa was increased by it and the flow of urine diminished.

PROFESSOR LICHTHEIM (Berne), his opponent in the discussion denied the existence of a serous plethora, and cited the recent publications of Bamberger, and one of his own pupils, showing that the relative amount of red corpuscles and serum was a constant quantity. He considered the method only suited (although then very effectual) for cases of fatty heart in persons of sedentary habit who lived high, and for the removal of dropsical swellings. The chief danger lay in acute dilatation of the ventricles; several of the cases of sudden death recorded were thus brought about.

DR. KISCH (Prague) mentioned that in cases of general obesity, with or without dropsical swellings, he had found that the proportion of red corpuscles was always constant.

Formulæ for Anthrarobin, a New Remedy in Dermatology.—BEHREND, in the *Therapeutische Monatshefte* for March, 1888, gives the following formulæ:

In ointments,

Anthrarobini	10 parts.
Ol. oliv.	30 "
Lanolini	60 "

A 10 per cent. ointment.

Also,

Anthrarobini	20 parts.
Ol. olivar., Lanolini	āā 40 "

A 20 per cent. ointment.

And,

Anthrarobini	10 parts.
Ol. olivar.	15 "
Adipis	75 "

A 10 per cent. ointment.

Also,

Anthrarobini, Ol. olivar.	āā 20 parts.
Adipis	60 "

A 20 per cent. ointment.

Alcoholic tinctures may be prescribed as follows:

Anthrarobini	10 parts.
Alcohol	90 "

A 10 per cent. tincture.

Also,

Anthrarobini	20 parts.
Alcohol	80 "

Dissolve by boiling.

A 20 per cent. tincture.

A glycerine solution is thus ordered:

Anthrarobini	10 parts.
Glycerin.	80 "

Solutions with borax, in water or glycerine:

Anthrarobini	10 parts.
Boracis	8 "
Aq. dest.	80 "

And,

Anthrarobini	20 parts.
Boracis	35 "
Glycerin., Spiritus	āā 90 "

Anthrarobin may be used where chrysarobin is indicated. (See THE MEDICAL NEWS of April 14, 1888, p. 412.)

A Loose Body in the Elbow-joint.—In the *Gazette Médicale de Strasbourg*, of April 1st, DR. G. BŒCKEL relates a case which is of some interest in connection with views which have recently been expressed as to the nature and mode of origin of loose bodies in joints. The patient, a strong, healthy man, aged forty-five, fell from a ladder on his left elbow. Immediately after the accident he lost all power of movement in the forearm. When he came under Dr. Bœckel's care some two months later, movement was found to be very limited and painful, both pronation and supination being accompanied by grating in the joint. Between the olecranon and the external condyle of the humerus a hard body was felt projecting slightly, which could be moved laterally to the extent of some millimetres. Dr. Bœckel was under the impression that he had to do with a case of old arthritis deformans, which the injury had started into renewed activity by displacing an osteophyte. He cut down on the loose body, and with considerable difficulty removed it, when he was surprised to find that it consisted of half the head, with a small piece of the neck, of the radius. The patient made an excellent recovery, and in three weeks from the date of the operation had so far regained the use of his limb that he was able to do light work with it. Dr. Bœckel said that this was the first case he had met with in which the loose body was a fragment of articular surface broken off by violence, and he took the opportunity of formally recanting a different opinion to which he had recently committed himself on the subject. In fact, less than a year ago (*Gaz. Méd. de Strasbourg*, 1887, No. 11, p. 121) he had maintained that such a mode of origin was inadmissible, the loose body being in all cases formed by vegetations springing from the synovial membrane or the articular cartilage.—*British Medical Journal*, April 14, 1888.

Stab Wound of the Left Ventricle; Recovery.—KIAWKOFF, in *Russkaja Medizina*, No. 42, reports the case of a Cossack who in a quarrel with a fellow soldier received a stab wound in the fourth intercostal space of the left side, in the mammillary line and parallel to the ribs, which bled profusely. The wound was cleansed, a compress applied, and restoratives were given. The area of dulness was greatly extended over the cardiac region, but the patient gradually recovered, and was discharged from the hospital in four weeks' time. Five days afterward, in attempting to lift a heavy weight, the patient expired suddenly. Post-mortem examination showed the integument wound closed; the pericardium was adherent to the wound. The cavity of the pericardium was filled with dark blood; a small punctured wound of the left ventricle was present, whose edges showed beginning fatty

degeneration of the heart muscle; subacute endocarditis was diagnosticated. The wound in the ventricle had probably closed, but the sudden strain had ruptured the cicatrix; the endocarditis resulting from the wound had not yet been recovered from. The reporter writes that seven per cent. of heart wounds are stated to have healed.—*Centralblatt für Chirurgie*, March 24, 1888.

Antipyrin and Saccharin in Diabetes.—*Les Nouveaux Remèdes* of April 8, 1888, gives the following formula:

R.—Antipyrin . . . . . ℥ 2½.
Saccharin. . . . . grs. 3.
Sodii bicarb. . . . . grs. 1½.
Infus. caffeæ . . . . ℥ 4½.—M.
Sig.—Teaspoonful to dessertspoonful three times daily.

An Explanation of the Action of Antipyrin.—In the *Practitioner* for April, 1888, BOKENHAM, after reporting various cases treated by antipyrin, explains the action of large and small doses as follows:

It appears to me that a reasonable explanation of the fact that small doses, given for the relief of migraine, seem quite as serviceable as much larger ones, may be found by considering the rate of excretion of the drug. It will be observed that diuresis was produced in some of the cases just narrated, and this is probably a key to the path taken by antipyrin in its elimination from the body. My own opinion is, that it is only the first portions that are absorbed which give relief, and that the surplus dose only throws unnecessary work on the kidneys. If these organs are not acting efficiently, the drug may accumulate in the system and produce poisonous symptoms. It is difficult to see, too, how such small doses can possibly produce that tolerance which has been found to follow the use of large doses with the same object, and which has rendered subsequent relief by the drug impossible.

Early Vaccination.—The *Lancet* of April 14, 1888, writes as follows on this point:

An infant, aged four weeks, who died from suffocation, was the subject of a coroner's inquest at East Greenwich last week. That the death was due to suffocation only was perfectly obvious; but the baby had been vaccinated when six days old, and the jury added to their verdict that this was too young an age to vaccinate a child, and desired the coroner to make a representation to the authorities "with a view to the prevention of similar cases in the future." Whether the jury hope to prevent the suffocation of children by this means is not quite clear, but we are led to assume this is their object; they appear, however, to have been informed by the practitioner who made the post-mortem examination that it was certainly not safe to vaccinate a child at so early an age, and on this point we may say a word. The child had been born in the Greenwich Union Infirmary, and children born in such institutions would, unless vaccinated before leaving, go out into the world and remain unprotected against smallpox, for these cases cannot often be traced by vaccination officers. There was, therefore, much reason for the vaccination of the child if it could be done without undue risk. Experience has amply shown that children at this very early period of life bear vaccination well, and we have no hesitation in saying that this operation is as nothing compared with the remaining susceptible to smallpox. We trust, therefore, the Greenwich guardians will not be moved to prevent the early vaccination of children born in their institutions.

The Treatment of Meningitis in Children.—The *Journal de Médecine* of March 18, 1888, in a detailed description of the treatment of meningitis in children, advises cold applications to the head and counter-irritation, also prompt purgation, if need be, by croton oil. If convulsions occur:

Ether . . . . . 20 parts.
Syrup. . . . . 30 "
Aquæ . . . . . 100 "

of this fifteen minims may be given as needed.

Epileptiform convulsions may be treated by

Zinc. oxid.,
Calomel.,
Valerian. pulv. . . . āā gr. 8.

In ten powders. One every four hours.

Photograms of the Eye.—The *British Medical Journal* writes that in the recent (sixtieth) Naturforscherversammlung in Wiesbaden both Dr. Claude du Bois-Reymond and Professor Cohn exhibited photograms of the eye obtained by means of the "lightning" illumination (discovered by Herren J. Goedicke and A. Miethe, Berlin, S. W., Ritterstrasse 74). The illumination is so sudden and fleeting that when it occurs in a chamber in previous absolute darkness, the pupil has not time to contract, and thus the maximal dilatation can be represented on photograms. It is hoped that by appropriate arrangements the retina can be thus photographed during life.

Morphinic and True Tetanus.—BROCK, of Richmond, in the *Virginia Medical Monthly* for April, 1888, concludes from cases under his observation, and from his study of the subject, that the disease may occur as:

(1st) *True tetanus*, established by the use of a foul syringe, or a filthy solution of morphine—either or both of them being contaminated by the presence of the pathogenic germ on which tetanus depends.

Or (2d) to the effects produced by the continued use of an impure article of morphine, rendered impure by the presence of one or more of the tetanous group of alkaloids, the action of which on the spinal cord produces a set of symptoms that are scarcely—if at all—distinguishable from true tetanus.

The Bacillus of Dysentery.—At a meeting of the Academy of Medicine of Paris on April 17th, CHANTEMESSE and VIDAL reported that they had found and cultivated a specific bacillus, in patients suffering from dysentery contracted in hot climates. The bacilli were found in the intestines and their contents, and in the spleen and mesenteric glands. The microbe develops rapidly on gelatine, in bouillon, and in water; it is colored with anilin only with difficulty. Rabbits inoculated with cultures of the bacillus, and by intra-peritoneal inoculation developed the lesions characteristic of dysentery. Peritonitis, pericarditis, and fibrinous pleurisy, were developed after intra-peritoneal inoculation with the bacilli.—*Revue de Clin. et de Thér.*, April 19, 1888.

A Liniment for Use in Neuralgias.—*L'Union Médicale* of March 22, 1888, gives the following formula:

Alcohol. camphor.	parts 90.
Ether. sulf.	parts 30.
Tinct. opii	parts 6.
Chloroform.	parts 20.

Flannel may be saturated with this fluid and laid upon a painful region of the body; over this an impervious material should be placed.

Is Chloroform a Safe Anæsthetic for Children?—The *Lancet* of April 14, 1888, writes that one of the many points of interest connected with the medico-legal aspects of anæsthetics was introduced at a recent inquest, held by Mr. A. Braxton Hicks, upon the body of an infant who died under chloroform at one of our large hospitals. The child, aged five months, was operated upon for the removal of a nævus, and died from the effects of the chloroform after the operation had been completed. The report states that the "coroner elicited that children very rarely die under chloroform; they take it readily, and easily recover." Children, it is true, take this anæsthetic fairly well, but it is hardly consonant with our present state of knowledge to allege that fatalities among infants and children under fifteen are less frequent than among adults, always providing the individual in either category is not the subject of disease. The ill-fed and poorly nourished children who come to our hospitals are not favorable subjects for chloroform administration, and the belief, which we fear is only too prevalent, that the young rarely die under its influence is likely to aid in increasing the number of victims who are yearly sacrificed to chloroform. It is highly probable that, when healthy members of the community are compared, no decennial period of life can be selected as being less obnoxious to chloroform than any other. Snow's tables, although faulty in some points, show, and we believe truly, that the maximum of deaths occur from chloroform between the ages of fifteen and forty-five; but such deaths are not to be attributed simply to an age liability, but to many intercurrent circumstances conditioning life during that busiest period of existence. When children are too small to render the exhibition of nitrous oxide gas and ether advisable, it is wiser to employ chloroform diluted with ether, as in the A.-C.-E. or one of the many kindred mixtures.

Antipyrin versus Insufflation in Whooping-cough.—GENSER, at a recent meeting of the Vienna Medical Society, reported thirty-six cases of whooping-cough treated by insufflation of various remedies, the average duration of the disease having been forty-three days. Insufflations possess this disadvantage, that they often cause attacks of coughing and vomiting, which greatly distress and weaken the patient. In marked contrast were the results obtained by the use of antipyrin. Taking one and one-half grains as his unit, Genser gave to children as many times this unit in twenty-four hours as the child was years old; for example, when ten years old fifteen grains. He often increased the doses to one and one-half times the original dose. Antipyrin was willingly taken in solution, and had only good effects. In 120 cases so treated, the average duration of illness was twenty-four and one-half days.—*Deutsche medicinische Wochenschrift*, April 19, 1888.

The Communicability of Tubercle by Milk.—PARKES, of London, in the *British Medical Journal* of April 21, 1888, writes as follows on this point: Whilst not denying that the tubercular virus may find other means of reaching the digestive tract than through unboiled cow's milk it appears to me that there are no sufficient safeguards in the management of town dairies to warrant us in assuming that milk from cows in an advanced stage of tuberculosis has no chance of being mixed with the milk of other healthy cows. In every dairy of any size there will probably be tubercular cows, some of them, perhaps, with tubercular deposits in the udders; and as it is the common custom with dairymen to mix together the milk yielded by different cows, it is not too much to assume that tubercle bacilli may be widely distributed in the milk supply of any town. It has been said that the tuberculosis of cattle is not the same disease as the tuberculosis of man, and that the absence of any proof of the human variety having ever been dependent upon ingestion or inoculation of the virus of the bovine variety tends to strengthen such a belief. To this it may be replied that the bacilli of bovine tuberculosis are identical—according to all bacteriological methods at present known—with those found in tubercular formations in the organs of man, and that although the disease presents anatomical differences in man and cattle, these differences may be explained as being due to differences of soil in the human and bovine tissues, the bacilli ingrafting themselves in those tissues which present conditions most favorable to their growth and development; secondly, absence of proof may only mean want of observation or recorded data, and cannot be held to imply that at no future time will satisfactory evidence of the dependence of the human disease upon a bovine source be brought to light.

Having regard to all those considerations, surely, the time has arrived when a radical change in the present methods of milk production and milk consumption is urgently needed. In the first place it should be rendered illegal for cows known to be suffering from tuberculosis to be kept in stock by dairymen and farmers for milking purposes; and, secondly, in no household should unboiled milk be consumed, more especially by children. No other animal food is consumed by civilized nations in an uncooked state; and by the light of our recently acquired knowledge it would appear that there is as much, or more, danger connected with the practice of drinking unboiled milk as of eating raw flesh.

Exposure to the heat of boiling water for five minutes destroys the life and action of the tubercular virus (Klein); and the same is true of the other specific disease poisons. By such simple means, then, is it possible to guard against an ever-present source of danger, as well as to obtain protection from those possibilities of the introduction into our bodies of the viruses of enteric fever, scarlet fever, and the like, which the experience of past epidemics has taught us to be latent possibilities in milk, with powers of development at the most unexpected periods. If medical practitioners generally recognized the importance of these views, and were careful to enforce them upon those entrusted with the care of delicate children of scrofulous diathesis, or with hereditary tendencies to tubercle, a commencement would be made in the right direction, which would gradually extend itself through all classes of society.

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SULPHONAL, A NEW HYPNOTIC.

THE restless life of modern civilization has so far murdered sleep that poppies and mandragora and the drowsy syrups of the East no longer serve us. They have lost their old charm and grow delusive and uncanny. On the one hand, we dare not use ourselves to them lest they make us their slaves for life; on the other, they fail us because they have become feeble and uncertain of effect. Too often these ancient drowsy drugs, whether they bring sleep or not, play sad pranks with our nerves and stomachs on the morrow. Thus it has come to pass that the quest for some new sleeping draught that has no drawbacks, either for to-night or to-morrow, has busied the modern therapeutist alike in field and laboratory. It is not probable that the ideal hypnotic, invariably certain, safe, and prompt alike for the well and the ill, will ever be found. The true nepenthe, like the fountain of youth and the philosopher's stone, exists not in nature but in the imaginations of men. Sleep and forgetfulness for a while, however, we can and often must have. The sleep-inducing properties of the modern, as of the older hypnotics, have, as a rule, been discovered by chance, and usually in the course of experimental studies of the effects of new-found substances upon animals.

KAST, of Freiburg, in the *Berliner klinische Wochenschrift* of April 16, 1888, in the course of investigations conducted in association with Baumann, in regard to the sulphur combinations in animal tissues, has brought to light a hypnotic of great importance. This substance is an oxidation product of a combination of æthylmercaptans with acetone. It crystallizes in large, colorless, tasteless, and odorless plates, soluble in one hundred parts of water at ordinary temperatures, and readily soluble in alcohol and in mixtures of alcohol and ether. It resists alike the action of acids and alkalies.

Administered to dogs, this substance produced ataxic phenomena, followed by muscular resolution, and finally by light slumber, passing into deep sleep lasting several hours. Upon waking, the animals were at first unsteady upon their feet, but soon came right again, eating with appetite and showing no trace of disturbance from the drug. Sleep by no means invariably resulted, the effects of the drug being occasionally, and especially in strong animals, limited to the above-mentioned motor disturbances. It was then seen that the drug in question possessed powerful physiological activities, affecting primarily the gray matter of the cerebral cortex.

Its effects in healthy human adults, in doses of from 45 to 60 grains, were somewhat analogous, the muscular phenomena being, however, absent, while the tendency to deep and prolonged sleep was, under circumstances favorable to repose, very great. Thus the customary short after-dinner nap of surgical convalescents in a quiet ward, was prolonged into a sleep of several hours, so deep that the patients were aroused with difficulty. The sleep thus induced was followed by no trace of derangement of the nervous system or digestion.

The hypnotic influence of the preparation in the insomnia of pathological conditions was next extensively studied. The sleeplessness of "neurotic" persons, of those suffering from organic disease of the brain, of old age, of the acute febrile affections, of the stadium ultimum of heart disease, of senile dementia attended by active delirium, yielded more or less promptly and completely to the influence of this remarkable drug.

The average single dose in these investigations was 30 grains. In females, as a rule, 15 grains only were required to produce full results; while in robust men as much as 45 grains were frequently given, without unpleasant after-effects. These doses had little or no effect upon the circulation or respiration. Spectroscopic and microscopic investigations showed that the drug exerts no unfavorable influence upon the composition of the blood. It is, also, without unfavorable local action upon the gastro-intes-

tinal mucous membrane. Kast has observed no indication of diminished effect from the continued use of the drug, notwithstanding the fact that some of his patients had taken it regularly for several weeks.

Kast concludes that sulphonal favors the usual periodical need of sleep, and when the normal tendency is lacking, calls it into existence. It is free from the dangers of opium and chloral, much more efficacious than the bromides, and of wider applicability than methylal, acetophenon (hypnone), urethan, paraldehyde, or amylen hydrate.

To this substance, which belongs to the group of the disulphons, Baumann has given the name diæthylsulphondimethylmethan, a designation against the scientific propriety of which nothing can be urged, but which is inconvenient for everyday use in practical medicine. The term "sulphonal," appears to meet the requirements of commerce,

Sulphonal may be administered in powder in water, or mixed with any convenient menstruum, or, being without taste or odor, in milk, soup, or tea. As to its fate in the organism, but little is as yet known: it is eliminated in great part with the urine in the form of other organic sulphur combinations.

We may look for further reports in regard to sulphonal. Already Rabbas, Assistant Physician in the Irrenanstalt in Marburg, has published in the *Berliner klinische Wochenschrift* of April 23, 1888, the results of his observations in twenty-seven insane patients, to whom the drug was administered on two hundred and twenty-five different occasions. These patients had been under observation for varying periods, and their previous use of various narcotics constituted control experiments which invest his researches with peculiar value. His conclusions are as follows: Sulphonal is a hypnotic which in moderate doses (30 to 45 grains) produces a more certain and better effect than amylen hydrate and paraldehyde in maximum doses. Its results are satisfactory, even in patients accustomed to the use of narcotics. It possesses decided advantages over these drugs in respect of taste and odor. While chloral hydrate induces sleep more rapidly than sulphonal, its effects are decidedly less lasting. Doses of sulphonal of 30 to 45 grains are followed, as a rule, by good results, even in conditions of great excitement. Prolonged use does not necessitate increased doses. Sleep follows usually in half an hour; occasionally, not for an hour or even two hours, and continues without interruption six or eight hours or longer, the effect being gradual and continuous, and the sleep in all respects like normal sleep. Large doses (60 grains) followed, after a short interval, by the usual dose (30 to 45 grains), produced no evil effect. Unpleasant after-effects do not occur. The appetite, digestion, respiration, and heart's action were in no way unfavorably affected.

Rabbas, while strongly advocating the use of sulphonal as a hypnotic, especially in insane patients, ends his report with the remark that it sometimes fails—there is no such thing as an absolutely certain hypnotic.

THE CARTWRIGHT LECTURES ON FEVER.

In Dr. Welch's lectures we not only have an able summary of our existing knowledge of fever, but a masterly presentment which will prove invaluable to the student as a starting-point for fresh investigations, and to the practitioner as offering suggestions on many points in etiology and treatment. One who has groped in the dim light of the theories of the past twenty-five years feels encouraged to hope, on rising from the perusal of these lectures, that a solution of the problem is not very far off, and that we shall ere long reach the heart of the mystery which for so many centuries has occupied the minds of the great thinkers of our profession. In the first lecture the conclusion is reached that fever-producing agents act in some way upon the nervous mechanism controlling the production and discharge of heat. The question of heat centres so carefully studied experimentally by Ott should engage the attention of clinicians, as the results of Hale White's observations indicate that we have here an important field for observation.

In the second lecture on the effects of increased temperature, questions of the highest clinical interest are discussed, such as the relation of the various symptoms associated in the febrile process to the elevation of temperature. High fever is not the only danger nor is it always, as Liebermeister held, the chief indication for treatment. Of the experimental evidence brought forward in this connection that relating to the action of high temperature on the heart muscle is of special interest. Dr. Welch thinks that we have been too hasty in assigning to degeneration of the heart muscle so large a share in the production of heart failure in fever. The symptoms may be present during life without extensive corresponding post-mortem changes, and, on the other hand, there may be extreme degeneration

without symptoms.. That fatty degeneration does not necessarily impair the functional activity of muscle seems proven by the fact that the blood pressure in animals with hearts demonstrated to be fatty is not lower than the normal. This entire section is worthy of the most careful study. There is no more important question offered for solution than the definite determination of the respective action on the one hand of the high temperature, and on the other of the infective agent.

In the final discussion on the etiology of fever, Dr. Welch has marshalled a long series of valuable facts in a most suggestive and instructive manner. Of special interest just now are his remarks on the group of pyrogenic agents which have no necessary connection with microörganisms, and which are either not foreign to the healthy organism, or are readily formed by unorganized ferments from normal or abnormal constituents of the body. The influence of non-pathogenic and pathogenic organisms in the production of fever is presented in a forcible and attractive way.

It is no disparagement to former holders of the lectureship to say that the value of the Cartwright foundation has never been better illustrated than in the course just completed, and to the Alumni Society of the College of Physicians and Surgeons of New York are due the thanks as well as the congratulations of the profession.

It is pleasing to note in these valuable lectures the repeated references to the work of American investigators on this most complex of all physiological problems—to Wood, Ott, Martin, and others; and it is also gratifying to have so able and comprehensive study from a member of the Johns Hopkins University, an institution, the medical department of which may, we trust, give a stimulus to advanced study in medicine and surgery in this country, such as the sister faculties have already given to literature, history, and science.

A TEST FOR INTESTINAL PERFORATIONS.

While it is very generally admitted that perforations of the gastro-intestinal tract should be closed by sutures, one need only read the discussions during the past year at the American Surgical Association and the Congress of French Surgeons, as well as the views expressed by recorders of individual examples of shot wounds of the belly, to be convinced that surgeons do not agree as to the propriety of exploratory laparotomy in doubtful cases. This hesitation is due, partly, to the obscurity of the early symptoms, and partly to the legal complications that may arise, but more to the fact that, up to the present time, there has been no accurate test in diagnosticating the existence of perforations of the gut, without a resort to exploratory laparotomy.

In the current number of The Medical News may be found an abstract of a remarkable paper read by Senn before the Surgical Section of the American Medical Association at its recent meeting, in which rectal insufflation of hydrogen gas is recommended as an infallible test for intestinal perforations. We had the pleasure of witnessing the author's experiments at Cincinnati, on three dogs, which conclusively proved the truth of his assertions as to the safety and absolute reliability of the measure.

It is scarcely to be expected that every surgeon will have a bag of hydrogen gas ready for emergencies, but there is no reason why every hospital should not be equipped with such a contrivance, to be used not only by its staff, but also to be available to other practitioners whenever it may be required.

At a meeting of the Trustees and Faculty of the Medical College of the State of South Carolina, held last week, the chair of surgery was divided into clinical and didactic surgery. Prof. R. A. Kinloch, who has long held the chair of surgery, was assigned to the chair of clinical surgery, and Dr. Manning Simons elected to that of didactic surgery.

Dr. P. Gourdin de Saussure was elected to the chair of obstetrics and gynecology made vacant by the death of Prof. J. Ford Prioleau.

Prof. Kinloch was made Dean of the Faculty.

Dr. Charles McBurney has been appointed Visiting Surgeon to Roosevelt Hospital, New York, in place of Dr. Sands, recently resigned. Dr. R. J. Hall has been appointed Attending Surgeon to Bellevue Hospital, and Dr. George L. Peabody Attending Physician.

It is announced that Succi, the faster, has begun a fast of thirty days in Florence, under the supervision of Italian physicians, who seek to ascertain from his fast how long the digestive organs may be safely left at absolute rest, as such knowledge would be valuable in abdominal surgery, in hemorrhage from perforation, and other conditions. Succi is allowed a saline laxative, an alkaline beverage water to drink and to use in cleansing the mouth, and a little olive oil to use by inunction.

SOCIETY PROCEEDINGS.

AMERICAN MEDICAL ASSOCIATION.

Thirty-ninth Annual Meeting, held at Cincinnati, May 8, 9, 10, and 11, 1888.

(Specially reported for THE MEDICAL NEWS.)

SECTIONS.

MEDICINE.

(Concluded from page 563.)

WEDNESDAY, MAY 9TH.

The Section went into an

ELECTION OF OFFICERS FOR THE ENSUING YEAR

which resulted as follows:

Chairman.—Dr. F. C. Shattuck, of Boston.

Secretary.—Dr. G. A. Fackler, of Cincinnati.

DR. WILLIAM PEPPER, of Philadelphia, opened the discussion

ON THE DIAGNOSIS AND TREATMENT OF DISEASES OF THE STOMACH.

He illustrated his remarks with the following case: A man had been losing two pounds in weight per week for a period of sixteen weeks. No disease could be detected. Blood and urine normal. No affection of heart and lungs. No enlargement of the spleen or glands. Eye ground presented no data of significance. No pain, vomiting, or constipation. Teeth had failed, and hence there was an element of imperfect mastication. Careful diet with small doses of arsenic brought about a temporary cessation of loss of flesh; but emaciation in time resumed its progress. Only by excluding every affection demonstrable did he arrive at a diagnosis of developing cancer in the walls of the stomach.

The case resulted fatally three to four months after it first came under his observation, and the walls of the stomach were found to be the seat of general carcinomatous infiltration. Such cases demonstrate the want of some additional more delicate means of diagnosis to insure accuracy. Not only is this true in rare cases like this, where all symptoms are absent, but many cases will be met with in which one or two symptoms may be present, and yet the group is too inadequate to make a definite diagnosis. He had but recently seen a business man, sixty-four years of age, who had previously enjoyed good health, but was suddenly attacked with severe pain in the pit of the stomach, coming on when that organ was empty and at night. It occurred every night, and extended from the pit of the stomach to the back. His bowels were quiet or a little costive. He had lost from thirty to forty pounds, was pale but not cachectic. Most careful search of the epigastrium revealed nothing. His radials were hard, and arcus senilis was present, the abdominal aorta appeared somewhat enlarged; no evidence of pancreatic disease. Under the use of careful diet, hydrocyanic acid, the application of the thermocautery to the region over the stomach and back, a most remarkable improvement was noted. But it was only transient. Months passed and emaciation advanced, and a hardness could be detected close up to the crura of the diaphragm. Patient died, and an autopsy revealed a fungus epithelioma in the superior posterior wall of the stomach, doubtless involving nervous filaments in the dense adhesions.

We recognize then the need of something outside of such clinical data as pain, vomiting, emaciation, etc., which, although they usually suffice to establish a diagnosis, still fail when they are most needed for differential diagnostic points.

He then alluded to a field which seemed to offer us assistance in this regard, viz., the application of organic chemistry in the examination of the contents of the stomach removed in a systematic manner. Vomiting usually occurs so soon after eating, and the vomited matter is so mixed with portions of the previous meals, or with mucus, etc., that the study of the substance is inadequate. The contents of the stomach should be removed by aspiration. It should be done at a definite time after the ingestion of a definite meal, which shall consist of a certain amount of mixed food, starchy and nitrogenous. The matter obtained should be tested for free hydrochloric acid, lactic acid, and peptic strength—that is, the power it possesses still further to digest albumen.

The methyl-violet is one of the best tests for hydrochloric acid. It is asserted by Riegel that, in thousands of investigations he has found that when cancer is present, no free hydrochloric acid will be found in the contents of the stomach six hours after a test meal. Here, then, we have a point of enormous importance if it be confirmed.

The secretion of the stomach is just as accessible as urine, though, of course, it cannot be collected with equal facility. The statements have been confirmed by most excellent observers. The ability to diagnose accurately has distinct limitations. In our efforts to diagnose a certain case, some or all the classical symptoms may be absent. Here, then, a field has been opened that appears to promise large results. What has been presented to us may be accepted as possessing confirmed value, although not regarded as infallible.

DR. F. C. SHATTUCK endorsed the conservative position of Dr. Pepper with regard to the test for cancer. The modern methods are very promising. At present our position must be a waiting one. In many cases the free hydrochloric acid is absent, and persistently absent. We should be careful not to draw our conclusions from one examination. Free hydrochloric acid has been found in undoubted cases of cancer, and has been absent in atrophy of the gastric tubules, in chronic gastric catarrh, and even in the normal state. Another question to consider is the quantity of the acid present. While the test for the acid is satisfactory and easy of application, yet, unfortunately, we possess no test which can be put to much clinical use to determine accurately the amount. We know that in cases of gastric ulcer there is a condition of undue gastric acidity. A method has been suggested by Ewald to gain some light as to the motor power of the stomach. He has taken advantage of the new remedy, salol, which is a combination of carbolic acid and salicylic acid, and is not broken up into these constituent parts in acid media. It passes, hence, through the stomach as a whole; when it comes in contact with the alkaline secretions in the duodenum, it is there broken up into carbolic and salicylic acids, and the latter, or its salts, are absorbed and may be detected in the urine. This experiment is of value especially in cases of supposed gastric dilatation. Ewald's investigations led him to think that

salicylic acid can be detected in the urine one hour after the time of its administration. The speaker had administered the remedy in 50 cases, in 27 of which the reaction was obtained in one hour or less, in 13 in one to one and a half hours, and in 10 in one and a half to three hours.

These were cases in which the stomach was presumably in normal condition. He had also given salol in a few cases of gastric disease. In two cases of chronic catarrh the reaction was obtained in one hour, in one case two hours to three hours and twenty minutes; in a case of gastric dilatation, one and a half hours; in a case of cancer in one and a half hours, and in a second case of cancer in two and a half hours.

The time relation between the digestion of food and the taking of the salol had seemed to make a difference in the interval which elapses before the salicyl reaction is obtained in the urine. We are not as yet, certainly, justified in diagnosticating motor insufficiency whenever the reaction is delayed beyond an hour.

DR. OCTERLONY, of Louisville, had for several years made use of chemical analysis in the diagnosis of gastric disease. In no single case did the examination fail to corroborate the diagnosis. In malignant disease free hydrochloric acid was always absent.

DR. WHITTAKER, of Cincinnati, said: The subject of supreme importance is the question of the presence or absence of free hydrochloric acid as a sign of the presence or absence of cancer. It has been made plain already that the continued absence of this acid nearly always means cancer as distinct from ulcer, in which process the acid is superabundant, not only as a prime cause in the production, but also in the prevention of the healing of an ulcer. It is the hyperacidity of the stomach that makes the gastric ulcer so obstinate. But the main interest centres about cancer, and the first question that arises is this: Is the detection of the presence or absence of the free acid easy? If the fluid furnished for examination must be sent to a chemist for examination on every occasion, the whole subject becomes impracticable. But the truth is, any practitioner may make the examination himself with not much more expenditure of time and trouble than attends the examination of urine for albumen. It is essential to remember, first, that the fluid must be withdrawn seven hours after a meal of bread and meat. A healthy stomach empties itself of its contents in this time. A mere inspection will show any undigested matter left. Then, as has been properly insisted upon, the fluid should be withdrawn through the long, soft stomach-tube, which the patient soon learns to swallow with ease. Depression of the outer end of the tube makes a siphon of it so that sufficient fluid can be collected in a cup. Should the contents not escape with a light pressure over the stomach, the tube may be filled with water and a little suction applied. It is best not to use the stomach-pump, though it may be necessary at times. But the practical value of the test ceases when complications of this kind arise. The patient, properly instructed, furnishes the fluid to the physician on his visit, or brings it to the office, as he would a bottle of urine.

If the fluid be clean, as it is, as a rule, it may be coarsely tested with litmus paper, but far better with congo paper, which will detect the 0.0019 per cent. of free acid. This paper, dipped in the fluid, remains red in the absence of free hydrochloric acid, whereas it becomes, in its presence, lilac or blue in intensity corresponding to the amount of acid present. Lactic acid will also color it, it is true, but lactic acid under one per cent. much less intensely than hydrochloric. A deep blue color is always imparted in a hyperacidity, as from gastric ulcer, and a deep blue nearly always means hydrochloric as distinct from lactic acid. The execution of this test is the work of a minute. The evidence of it may be corroborated by the methyl-violet test, which is also short work. A few drops of the stomach fluid, filtered of course, if turbid, dropped into a test-tube containing a solution of methyl-violet, distinctly colored, changes the color, if free acid be present, distinctly to blue.

To decide absolutely between hydrochloric and lactic acids in a doubtful case, where coloration is not very decided or pronounced, it is necessary to resort to the test of Uffelman; two drops of liq. ferri sesquichloridi added to a four per cent. solution of carbolic acid, give this clear solution a steel-blue color. This solution is decolorized by hydrochloric acid, but is turned yellow by lactic acid. No other acid, acetic, butyric, etc., found in the stomach, has this property.

Now, if examination daily or every other day for a week or ten days shows the persistent absence of free hydrochloric acid, it is safe to conclude the case to be cancer. The evidence is actually more valuable than that furnished by a tumor. It is the most valuable single sign. There are exceptions, of course, but they are about as frequent as the exceptions connected with albuminuria, of which it is known, that while the presence of albumen does not necessarily imply it, and the absence of it necessarily exclude it, yet the persistent presence of albumen in the urine nearly always means Bright's disease.

The main difficulty in the experience of the speaker was to get the patient to furnish the fluid. Patients who come from a distance and want a diagnosis at once, cannot have the benefit of this test. A stay of a week or ten days is necessary for a proper examination. It is the first trial only that is difficult. After the first success with the tube, confidence is established and subsequent attempts are easy.

It is impossible to overestimate the value of this test in doubtful cases, and most cases are doubtful, and correspondingly great are our obligations to the gentleman who has come so far to bring this subject properly before us.

THURSDAY, MAY 10TH.

DR. J. MCFADDEN GASTON, of Atlanta, read a paper on

CEREBRO-SPINAL MENINGITIS.

His object in preparing the paper was to emphasize the great importance of recognizing the gravity of the situation at an early period, by the general symptoms indicative of congestion and not wait for indications of inflammation to determine the nature of the disease. He cited forty-five cases of meningitis, thirty-five of which were cerebro-spinal meningitis and the balance spinal meningitis, with the following results, eighty per cent. of the latter and forty per cent. of the former died. As to treatment, he thought that while the recourse to opiates has, in some cases, seemed to afford relief, it is evident that in most cases it only soothes the passage to the grave. There is an urgent demand for restoring the functions of the vital organs and rousing the nerve cen-

ters to action by revulsive applications externally and revolutionary measures internally.

Relying upon the special properties of a mixture of calomel and quinine, he has employed it for the purpose of jugulating the progressive development of the congestive stage of this disease. Hot mustard baths were applied to the lower extremities and cold to the head.

Mustard plasters may also be placed along the spine assisting in restoring the energy of the nervous system, together with mustard applications to the inner surface of the arms and legs. He cited cases in illustration and proof of the efficacy of this treatment, followed by the administration of salicylate of sodium and fluid extract of jaborandi.

DR. DIDAMA, of Syracuse, gave in detail five very obstinate cases of

HEMATURIA,

which, after resisting ordinary and extraordinary treatment for periods of from six weeks to three months, finally yielded, in the course of a week or so, to large doses of alum—five drachms, three times daily—or smaller quantities every three hours. He called attention to the importance of having the alum dissolved in a large quantity of water, and claimed that when so diluted —twenty grains to a goblet of water—it found ready access to the blood and urinary passages, and never produced constipation. Some of his cases had, under the care of the most eminent physicians, received the best known treatment without the slightest benefit. Alum had been used in some instances, but never in the large doses which he has employed with invariable success up to the present time.

DR. N. S. DAVIS had met with cases of persistent hematuria, so severe as greatly to impoverish the patient and endanger life. He reported a case of such a character, which could not otherwise be explained than upon the theory that there existed a defect in the influence of the vasomotor nerves over the vessels of the kidney. Acting upon this theory, he had used the remedies under which the patient recovered, ergotin on the one hand, in moderately full doses, and at the same time, the fluid extract of hamæmelis Virginicus. It is probable that alum, well diluted, so as not to create gastric disturbance, will pass through the kidneys in sufficient quantity to increase the tonicity of the kidney vessels.

DR. V. C. VAUGHAN, of Ann Arbor, read a paper upon the

ETIOLOGY OF TYPHOID FEVER,

presenting in detail his experiments with the Eberth bacillus obtained from drinking water, and the successful inoculation of dogs with the germ.

SURGERY.

TUESDAY, MAY 8TH.

The Surgical Section convened at 3 P.M., DONALD MCLEAN, M.D., of Detroit, *President*, in the Chair, and B. A. WATSON, M.D., *Secretary*.

DR. MCLEAN, after calling the Section to order, at once proceeded to deliver his address, entitled

SOME THOUGHTS ON RETROSPECTIVE AND PROSPECTIVE SURGERY.

Our generation has witnessed one of the most active and progressive eras in the history of that department of the medical sciences to which the attention of this Section is especially directed. It occurred to him that a concise and candid statement of some of the impressions made upon his own mind, and some of the conclusions at which he had arrived as the result of active experience, extending over a period of at least a quarter of a century, might not be altogether uninteresting.

The marvellous progress of surgery in our time is generally attributed to two great agents, namely, anæsthetics and antiseptics. But, with all due deference to these, it should not be forgotten that they themselves are only part of the fruits of a great general movement all along the line of the natural sciences, and that advances in anatomy, chemistry, physiology, histology, etc., have contributed in innumerable ways to the progress of surgery, and it is no more than just that the great army of able and enthusiastic laborers in these collateral departments should receive adequate recognition for the services which they have rendered, directly or indirectly, to surgery. Nor should the fact be overlooked that, even before the beginning of the present surgical era—that is, before the introduction of anæsthetics, and long before antiseptics were dreamed of, surgery was a great and a brilliant scientific art, and many of the principles and the methods promulgated and taught by our fathers, stand unchallenged and unchanged to this day.

It is a common thing to hear much if not all the credit of the wonderful advances in the surgery of the abdomen, the surgery of the articulations, the surgery of the blood-vessels, etc., given to Listerism, or antiseptic devices. The fact is, that *antiseptics without anæsthetics could have had but a comparatively insignificant field of usefulness:* and before attempting to decide or define the value of antiseptic processes let us try to do justice to some of the other factors in this interesting problem.

The introduction of anæsthetics vastly extended the bounds of modern surgery. It must not be forgotten that this great advance had attained considerable progress before the introduction of antiseptics, as is best illustrated in the history of abdominal surgery. Spencer Wells, Clay, Atlee, Peaslee, Dunlap, and Keith, had achieved world-wide fame as ovariotomists long prior to the advent of antiseptic surgery. It has been customary, or, perhaps, fashionable of late years, when a successful operation of a new or exceptional nature, such as resection of intestine, cholecystectomy, splenectomy, etc., is reported to claim the result as another argument or fact in support of antiseptic surgery.

Is it not just possible that too much importance has been attached to the influence of antiseptics and too little to the numerous other factors which enter into this complex and many-sided problem. All honor to Lister as the great apostle of surgical cleanliness, no matter what the ultimate fate of his theoretical views may be. Whatever the fate of the so-called germicides, like carbolic acid, bichloride of mercury, etc., may be, one thing is certain that anything like a return to the old, loose methods of conducting surgical operations and of dressing surgical patients is absolutely impossible, and for this the world will always feel grateful to Joseph Lister.

With reference to anæsthetics, he found himself irresistibly forced to the conclusion that upon the whole for all general purposes, chloroform possesses superior advantages. His own experience has led him to believe that when carefully administered in suitable cases it is little, if at all, more dangerous than other anæsthetics, and its

advantages in other respects are too well known to require illustration. Fortunately, in the progress of surgery in late years, local anæsthesia by ether spray, cocaine, etc., has been found to constitute an efficient and altogether safe substitute in a large field of minor, though painful operations.

Much was hoped from the microscope as an aid to the diagnosis of different kinds of tumors, and for determining the prognosis in relation to the return, or the danger of general infection of the system. He could not persuade himself that it has added much, if anything, to our resources. In certain departments of practical medicine, as in the examination of the urine, it is invaluable; but to the ordinary practical surgeon its use has not equalled the expectations of its early enthusiastic advocates.

Electricity has, when used for suitable purposes, demonstrated its right to the respect and gratitude of the profession. Much harm has been done and much unfair prejudice has been excited against this useful agent by the absurd and extravagant claims which have, from time to time, been made in its behalf as the result of inaccurate observations or unscientific deductions, and there is reason to fear that this kind of obstruction to the proper recognition of electricity as a surgical agent has not yet entirely ceased.

The applicability of electrolysis to urethral fistulæ of long standing was made a subject of especial consideration, as was also its effect upon the growth and tendencies of uterine fibroids, as supported by Apostoli, Keith, and others.

With regard to the treatment of aneurisms, he believed the revival of the old operation of Antyllus in certain suitable cases, and the restriction of the Hunterian operation to a somewhat more limited field of usefulness, a striking and interesting improvement, for which the credit is mainly due Professor Syme.

The recently promulgated view that an artery may be securely ligatured by a broad animal ligature, without rupture of any of its coats and without the formation and organization of the classical coagulum, was pronounced, if true, the greatest discovery relative to the surgery of the arteries which has been made in our day. Such a revolutionary doctrine, ought, however, to be accepted cautiously, and after careful observations *on the human subject*. A few personal observations favoring this view were reported.

The treatment of diseased joints has made solid progress in recent times. Those intractable cases, to the pathology of which Sir Astley Cooper devoted so much attention and which he unsuccessfully endeavored to cure by different forms of counter-irritation and constitutional treatment, are now successfully managed by rest, pressure-extension, and counter-extension, and especially by the operation of resection or partial resection. The latter operation was especially valued.

In the treatment of fractures, he preferred the Gurdon Buck method now so generally employed. He preferred a splint made of folded newspapers surrounded by a roll of cotton wadding. The treatment of Colles's fracture without splints is an advance. The sprain of the neighboring joint should be considered the important factor in the case, and immobilization is everywhere contra-indicated in sprains. The treatment of non-united fractures was also considered.

He closed with a consideration of the operation for the removal of urinary calculi, expressing preference for the cutting operation as being more certain of success and much less liable to be followed by recurrence.

DR. HENRY H. SMITH, of Philadelphia, read a paper on

THE APPENDIX VERMIFORMIS; ITS FUNCTION, PATHOLOGY, AND TREATMENT.

In writing of intestinal obstructions, he said, Mr. Treves states that "their importance may, in one way, be estimated by the circumstance that over 2000 individuals die every year in Great Britain from obstructions of the bowels, exclusive of hernia." Dr. Senn, of Milwaukee, also considers them of such importance that during the last eighteen months he has reported one hundred and fifty operations performed on animals for the purpose of studying the principal varieties of intestinal obstruction produced artificially. Treves does not state what proportion of the deaths he speaks of were due to disorders of the appendix, and Dr. Senn's experiments have not been extended to this tube. It is, however, widely known that the appendix is sometimes a cause of constriction of the ileum, and that stenosis of its cæcal orifice, from inflammation of its coats, or concretions, or foreign bodies in its canal, frequently induces local and general peritonitis, pericæcal abscess, or perityphlitis. Whether the starting-point of the latter is in the appendix or in the cæcum, is still *sub judice;* but there is much evidence to show that it is in the appendix in the United States.

He next considered the special anatomy of the appendix. In man it varies from two to nine inches in length, about as broad as a goose-quill. It is generally slightly flexed, is sometimes adherent to the left and posterior side of the cæcum, and extending up nearly to the gall-bladder. Its blind extremity points toward the spleen, though it may dip into the pelvis and become adherent to the right broad ligament or ovary. When it occasionally becomes attached to some other organ and wound around the cæcum, it may cause strangulation. At the base, the appendix opens obliquely into the posterior and inner, but not the lowest point of the cæcum. The mucous coat and submucous tissue are well developed; a semilunar fold opposes the passage of solids into the appendix. Such entrance is forced mainly by straining or vomiting. Sometimes there is a second deeper, valve-like projection. Gerlach states that, in elderly persons, these valves are shrunken and atrophied, and this is the reason that perforation from the pressure of concretions is unknown. Perityphlitis is rare after forty; Bauer states that typhlitis is most common between sixteen and thirty-five. Appendicitis is mostly met with before forty-five.

The coats of the appendix are the same as those of the intestine, but the longitudinal fibres predominate, their action tending to force its contents into the cæcum. The follicles of Lieberkühn are abundant; Peyer's agminated follicles are also present; Brunner's glands are not beyond question.

The function of the appendix is yet doubtful, some question its importance, as it is found in but six animals. Morgagni, John Hunter, Meckel, Haller, and others, report cases where the appendix was wanting in man, and attach little importance to it. A recognition of its function in health would, however, be of importance to our treatment

of its diseased conditions. That the appendix exercises some influence on the action of the cæcum in digestion is probable, as its mucous coat differs quite materially from that of the cæcum and colon in the arrangement of its capillaries and crypts. Whatever be its function, the mucous membrane of the appendix is certainly liable to catarrhal inflammation, leading to stenosis, accumulation of secretion, distention, ulceration, and perforation, and finally peritonitis, with accumulation of pus and abscess in the right iliac region, especially in the loose connective tissue around the cæcum, a symptom often spoken of as perityphlitis. As surgeons, should we not strive to overcome the early constipation, and the restoration of the bowels, by emptying the cæcum, and favoring increased peristalsis; or, when this fails, promptly overcome the obstruction by an operation?

He then considered the pathological conditions to which the appendix is liable, malformations, misplacements, occlusion by foreign bodies, ulceration, perforation, inflammations, etc., with the numerous consequences upon itself or other organs. Tuberculosis sometimes attacks the glands of Peyer in the appendix. The stenosis of the canal with retention of the secretion not infrequently results in the formation of a calculus, the nucleus of which may be a speck of hardened feces around which the mucus collects, receiving in addition a deposit of phosphate or carbonate of lime.

The symptoms of appendicitis are in the beginning those which indicate a disturbance of digestion, the disease appearing without premonitory symptoms, with griping, vomiting sometimes severe. The pain may be preceded or followed by vomiting, first mucous then stercoraceous. The right thigh is sometimes flexed. The attack may be a single severe prolonged one or may remit. The belly may be tympanitic with variable flatness in the right side, sometimes more prominent than usual; sometimes a tumor is palpable.

The diagnosis, usually difficult, may, when early sought, be arrived at from due consideration of the history, by palpation, revealing imperfect induration in the right iliac region with pain, when the temperature and pulse permanently rise and there are symptoms of peritonitis. Even a diagnostical laparotomy often leaves the patient in a better condition when an appendicitis is neglected.

The prognosis is always grave and the result uncertain.

Under the head of treatment the speaker insisted upon the importance of an early recognition of the condition and the following out of the preliminary treatment such as would be directed to an intestinal catarrh, the administration of five grain doses of calomel, until twenty or thirty are taken, morphia hypodermatically to relieve pain, and a dose of sulphate of soda or magnesia. This in the early stages before perforation is supposed to have occurred. The patient should be etherized for careful palpation. A delay in operating for appendicitis, as in hernia, decreases the chances of recovery.

DR. THOMAS G. MORTON, of Philadelphia, next read a paper on

THE DIAGNOSIS OF PERI-CÆCAL ABSCESS AND ITS RADICAL TREATMENT BY REMOVAL OF THE APPENDIX VERMIFORMIS.

Abdominal surgery can show many brilliant achievements under modern antiseptic methods, but in scarcely another instance does an operation afford its own justification, or when properly timed present such satisfactory results as laparotomy when performed for suppurative appendicitis.

Under the head of pathology and clinical history, the speaker said that it would greatly simplify the subject under discussion if we can first clear up the nomenclature, which it would seem has been greatly confused by the refinements of pathologists and others. We are accustomed to certain distinct terms to express inflammation of the cæcum, of its peritoneal investment, and of the surrounding structures and cellular tissue.

It would seem reasonable that all the niceties of diagnosis between typhlitis, perityphlitis, paratyphlitis, and pericæcal abscess can properly be set aside as without real practical value; since recent pathological researches have demonstrated that as a rule in cases presenting the well-recognized characters of typhlitis, the symptoms are almost invariably due to appendicitis. Exceedingly rare are the cases in which the cause resides in the cæcum. Pericæcal abscess may then, in most cases, be said to mean disease of the appendix vermiformis.

It seems hardly worth while to consider the conventional division of appendicitis into the catarrhal and the ulcerative; for clinically speaking, although an uncomplicated catarrhal condition may exist, there are ordinarily no signs by which it may be recognized.

Inflammation and perforation of the appendix, in most cases, very probably in all, is due to irritation excited by the presence of a foreign body in the organ. It has been shown that the foreign body is commonly a fecal or a phosphatic concretion, or an aggregation of small bodies which have from time to time gained admittance, or the concretion may be composed of epithelium or other constituents aggregated into a hard mass from the ordinary secretions of the parts.

No complete or fully satisfactory classification of the cases of inflammation, perforation, and abscess of the appendix can probably at this time be made; but for practical purposes, a division according to the onset and history of the disease, into the acute and chronic varieties, will probably fulfil all necessary clinical requirements.

In the acute disease the symptoms come on with suddenness and increase in severity, often very early presenting grave characters. Occasionally the disease progresses from first to last, with frightful rapidity, so much so that the patient rapidly enters a condition bordering on collapse. Possibly the extremely acute cases might afford an opportunity for a still further division into the acute and the supra-acute; the latter cases running their course in a few hours.

The close proximity to the peritoneum of such fetid pus as is found in suppurative appendicitis produces very early unusual depression and exhaustion.

In the chronic forms of appendicitis we have recurring attacks or relapses. These are often followed by deposits of lymph which forms a barrier more or less complete, sufficient when perforation takes place to protect the peritoneal cavity at least for a time. But if operative measures are not undertaken or are unduly delayed, such lymph partitions often yield, and the general peritoneal cavity becomes involved and peritonitis results. In other cases, the abscess walls form a distinct pus cavity which surrounds the organ so that when perforation occurs gas and pus form a tumor, of more or less defined

hardness. Such tumors frequently make their way toward the surface, and the superimposed structures become infiltrated and markedly œdematous. In such cases the perforation of the appendix may remain open and a fistule form between the bowel, the abscess cavity, and the external abdominal surface. Several cases of appendicular disease were reported.

As a provisional classification of the diseases of the appendix the author offered the following:

1. Those cases where the appendix and its surroundings become encysted by deposits of lymph, so that a cavity more or less complete is formed, into which the contents of the appendix are received when perforation occurs, while the walls of the cavity afford possibly a complete separation partition which separates it from the peritoneal cavity. These cases are likely to be chronic in their course.

2. Those cases in which an insufficient limiting partition wall has been formed and where the general peritoneum promptly becomes involved. Appendicular ulceration and perforation has been so rapid that sufficient lymph for the production of a partition wall has not been thrown out. This group furnishes the acute cases.

The symptoms of the disease were much the same as those described by Dr. H. H. Smith.

In the author's opinion many attacks of so-called colic are but contractions of the appendix in its efforts to expel foreign bodies so often present.

Actual perforation of the appendix is generally ushered in by intense, excruciating, agonizing pain, which is sometimes relieved by the occurrence of the accident.

Treatment.—He divided the treatment into that of the pre-purulent and that of the post-purulent or suppurative stage. The treatment of the former stage should consist of rest in bed, restriction of diet to nourishing liquids, hot poultices or fomentations frequently replaced upon the parts, perhaps local depletion and the hypodermatic administration of morphia to control pain. The bowels should be kept open and free from the accumulation of gas or feces by the administration of saline laxatives and enemas, perhaps with the administration of turpentine with the latter. Intense pain is as often an indication for operation as for the administration of morphia. Long continuation of the symptoms, or relapses would be strong indication for surgical interference. Tedious recovery, relapse, or recurrence points to danger to the patient from liability to general peritonitis or perforation at any time. They would point further, as a rule, to the appendix as the source of irritation and danger—indeed, in man that worse than useless appendage must be regarded as the root of most evil in the region under consideration. After suppuration operative measures are demanded. Many risks are to be taken rather than those of purulent peritonitis. Later all available diagnostic skill must be exerted to detect a pericæcal abscess, should it point in an anomalous situation. We must ever bear in mind the surgical rule always to attack pus at its source, if possible.

The Operation.—On account of the nature of the case there is rarely any opportunity for preparatory treatment for the operation. Asepsis should be rigidly observed at the time of the operation. The aspirating or exploring needle should never be used for exploring purposes; it is dangerous. The patient supine and extended, the field of operation is thoroughly cleansed, shaved, and washed with bichloride solution 1 : 1000, and finally with ether. The line of incision is slightly oblique or vertical and lateral. The lateral incision can be made of less size and directly over the appendix. It has many other advantages. It should begin at a point about an inch above Poupart's ligament and to the outer side of the right linea semilunaris, to be continued upward in a vertical direction or outward and upward and carried down until pus, cæcum, or peritoneum is reached. From numerous dissections, the speaker had found that the appendix is normally placed immediately under a point two inches distant from the right anterior superior spinous process on a horizontal line drawn from this process toward the median line of the body.

When the abscess cavity is reached gas is usually first discharged. The wound can then be enlarged, if necessary, in order fully to expose the cavity underneath. Irrigation, with boiled water at a temperature of 105° to 110° and careful sponging, now permit a clear view of the surroundings of cæcum and appendix. The latter is usually the seat of trouble. It would be well to excise it in any case whilst we have the chance; for any cæcal trouble would be likely in time to excite trouble in the appendix. Without a doubt it should be so treated if found inflamed, perforated, or harboring foreign bodies. This can best be accomplished by ligaturing it as close as possible to its cæcal attachment, with a strong silk thread, and cutting it off beyond the ligature. Cæcal perforations, if found, should be cleaned and curetted and then closed with Lembert's suture; even ulcers which have not perforated might thus be turned into the bowel lumen. If the general peritoneal cavity has not become involved, the walls of the abscess should be gently curetted, washed with a mercuric solution, 1 : 1000, and a large drain carried to the bottom of the wound and brought out at its most dependent part. The external wound should, with the exception of a suture or two, be left thoroughly open and lightly filled with an antiseptic dressing. A rope of absorbent cotton should be placed in the glass tube, a large mass of cotton should cover the abdominal and wound surface. A four-tailed bandage completes the dressing.

If the general peritoneum has become involved, the entire abdominal cavity must be washed out with hot distilled water, temperature of 105° to 110° F. or bichloride of mercury solution 1 : 10,000. The intestines should be cleansed with a sponge, and a foreign body, if that has been the cause of the trouble, searched for. Should peritonitis be far advanced, the intestines must be withdrawn and all adhesions separated with the finger or knife. During the process of cleansing and before they are returned to the abdomen, they should be carefully protected with towels wrung out of hot water. In all cases of general peritonitis a glass drainage tube must be carried to the bottom of the pelvic cavity and kept in working order by ropes of absorbent cotton which act by capillarity. Should the cause of morbid action be impaction of feces or a foreign body, in the cæcum itself, they must either be excised or urged along the bowel by prudent force. It can properly be said that there is no fixed time for operation in cases of pericæcal abscess. When symptoms strongly indicating the presence of pus are seen it is far safer to operate at once than to wait. Delay is prognostic of the gravest consequences to the patient, the prognosis growing worse every hour that the operation is postponed.

The after-treatment resolves itself into the relief of pain and keeping the wound open and in a thoroughly clean aseptic condition. The rules of abdominal surgery govern the treatment.

DR. J. MCFADDEN GASTON, of Atlanta, read a paper on

THE APPENDIX VERMIFORMIS; ITS FUNCTIONS, PATHOLOGICAL CHANGES, AND TREATMENT.

He first reviewed the anatomical characters of the organ in much the same manner as those who just preceded him. He did not regard it as a safety valve for the cæcum, but rather as a loop-hole for the entrance of matters prejudicial to it and the adjacent structures. He thought also that the appendix performed an active part in the production of the fecal odor, without, however, supporting his view.

He reiterated a former statement that he could not acquiesce in the view of pathologists which attributes the degeneration of the cæcum and appendix to a low state of vitality in their tissues, but on the contrary he held that they are highly vitalized and that it is from being overtaxed in the performance of functions connected with the excrementitious process that they are so subject to disease. Although looking upon the appendix as worse than useless, as already stated, the author held a very different view of the harmlessness of its removal, since in dogs experimented upon by himself, the operation was generally followed by death, from shock, within twenty-four hours; whereas, removal of the ileum was followed by no such untoward symptoms. Under the head of treatment nothing was added to what had been stated by the previous essayists.

WEDNESDAY, MAY 9TH.—MORNING SESSION.

DR. JOSEPH RANSOHOFF read a paper on

THE CÆCUM AND APPENDIX; THEIR RELATIONS TO HEALTH AND DISEASE.

DR. S. L. MCMURTRY, of Danville, Ky., followed with the report of

A CASE OF TYPHLITIS WITH PERFORATION; LAPAROTOMY; RECOVERY.

Occurring in a young physician, who for several months had suffered from occasional attacks of colic, not severe but coming on without warning, attended with nausea and vomiting, and attributed to indigestion. The intensity of the pain with its location, excited suspicions of renal colic in the minds of his attendants. Morphia was administered freely, and laxatives for the constipation which existed. January 23d, a slight almond-shaped induration was first detected, dull to percussion. The induration increased until it became an oblong, sausage-shaped tumor in the right iliac fossa. There was moderate fever. On the evening of January 26th hemorrhage of the bowels began, thirty-two ounces of blood being passed. Hiccough was added to the other symptoms, which, with increased frequence of the pulse, tympanites, and serious vomiting established the diagnosis of cæcal or pericæcal inflammation. On the morning of the 27th, cold perspiration, rapid pulse, and cold extremities were interpreted as signs of perforation and impending collapse.

When he saw the case on the morning of the 27th, the patient was in the condition just described, with frequent vomiting of green serous fluid, characteristic of peritonitis, and bloody stools. The tumor, distinct in outline, was readily recognized as the caput coli. Immediate operative measures were determined upon. The lateral incision immediately over the tumor was made under thorough antiseptic precautions. The peritonitis was found to be limited, but recent, severe, and bearing evidences of spreading. The vermiform appendix was normal. Upon the anterior and external surface of the cæcum were two gangrenous perforations, one somewhat larger than a twenty-five cent piece, the other a little larger than a ten cent piece; both black and round in shape. The larger was complete, the smaller scarcely so. With the scissors the edges were trimmed off, the rents closed with five and three silk Lembert sutures respectively, passed beneath the muscular coat but not into the mucous. The toilette was made with scrupulous care. Immediate improvement followed, and the recovery was complete.

At the close of his report, he briefly reviewed the history of the operation he had performed, as well as that of affections of the cæcum. With reference to the time for operation, he said that when pus forms in the retro-peritoneal tissue and is making its way toward the surface delay may facilitate its access by allowing the peritoneum to be pushed aside; but this advantage does not counterbalance the benefits of an exploratory incision, which should be resorted to as soon as grave symptoms suggest it. The aspirator is unreliable and unsatisfactory as an exploratory means in these cases and its use is attended with danger of peritoneal infection. The exploratory incision is much more free from danger and more satisfactory. As soon as the diagnosis of intra-peritoneal inflammation is made, abdominal section should be performed. To wait, administering opium, is neither conservative nor surgical. In the case reported, the speaker thought the success due to the early recognition of the lesions by the gentlemen in attendance, and the prompt acceptance of the proposed operation by the patient.

DR. ANDREWS, of Chicago, objected to the too speedy resort to laparotomy in these cases. He reported a case, somewhat similar in character to that reported, in which he had performed the operation, but only after a fecal fistula had formed. It was a perfect success so far as the operation was concerned; not, however, preventing the patient from succumbing to Bright's disease a short time after.

DR. S. W. GROSS, of Philadelphia, remarked with reference to the propriety of performing laparotomy in cases of perforating appendicitis, cæcitis, etc., that there are cases in which the abscess points posteriorly and opens behind the cæcum. Of course, no surgeon would think in a case like that of opening the abdominal cavity. But he thought that in all cases in which there is perforation of the cæcum no surgeon will wait very long before he does laparotomy. We are liable at any time to meet with a case of walking typhoid; intense pain is felt in the iliac region, which pain is circumscribed. There are elevation of temperature and increase of the pulse-rate. In such a case he would not hesitate to lay open the abdomen. He would not wait for any other symptom to appear. He would infer that perforation had

occurred and that the symptoms were the general symptoms of peritonitis. He thought that if we neglect these cases the patients will almost certainly die; and on the other hand that if we operate we will almost surely save them.

Dr. Nelson, of Connecticut, reported a case of a young man who had been sick about ten days, pulse 100, temperature about 100° F.; skin dry, sallow and dusky; tongue somewhat coated. He had some pain in the right iliac region. A tumor presented, which showed evidences of pointing in two or three places. He aspirated, found pus, evacuated it and the patient had no further trouble. He thought the case has important bearing on the advice to operate in all cases and early. He reported also another case in which there was a spontaneous evacuation of a large quantity of fetid pus, followed by a relief of symptoms resembling those of perforating appendicitis. There is a certain degree of danger, he said, in these operations that we open not only the abdomen, but also the intestine, and he thought there was some danger of a fistulous opening remaining, although he could not recall such a case. He did not recognize so great an amount of danger associated with the introduction of a needle as belongs to the making of an incision with the knife.

Dr. Weeks, of Maine, remarked that the point of importance is the line of incision in the cases in which laparotomy is indicated for perforation of the appendix and cæcum. There exists to-day a doubt as to the best point of incision. From his own experience, particularly that obtained from several cases seen within the last few months, he expressed a preference for the incision directly over the cæcum, by which the operator comes directly upon the seat of trouble. With reference to the point at which the cæcum may be found, he regretted that the anatomies and surgeries are so obscure. The incision should begin one inch inside and about two inches above the anterior superior spinous process.

Dr. Dixon, of Kentucky, reported a case in which he had operated last February, by the lateral method. He found a cavity filled with fetid gas and pus, and in the bottom of it a large perforation of the intestine. After cleansing the cavity as thoroughly as possible and ligating the appendix, until then following as nearly as possible the rules laid down by Smith, the incision was closed by Lembert's suture, a drainage tube being left in the opening.

Dr. H. H. Mudd, of St. Louis, remarked that the difficulty here, as in all cases of abdominal operation for obstruction, is in the diagnosis and the determination of conditions which demand, or do not demand, operative procedure. Ileo-cæcal obstruction affords almost as good an opportunity for diagnosis as any abdominal condition that we have. We have three sources for the formation of a tumor in this region, the accumulation of fæces, the accumulation of gas, and the infiltration of serous fluid about the walls of the intestine. Now if we have symptoms of obstruction preceding the final development of a tumor, we have something to guide us, and if supervening upon this we have a sudden acute attack of pain, which is persistent, which is accompanied by increased distention, which is accompanied by the usual symptoms of perforation, then we have conditions which favor operative procedure at once. But if we have developing slowly with these symptoms, a tumor, it may be the result of infiltration of serum in the cellular tissue, then we have a condition in which we should wait for some time. He had seen a number of those cases recover by simply watching, and he had seen others get well after a laparotomy.

He reported also a case of abscess in the lumbar region from which a lumbricoid worm escaped, followed by speedy recovery. He had seen a case last week in which he made a laparotomy under rather unusual circumstances. The patient had had recurring attacks of pain; had been in the hospital eleven weeks with symptoms of obstruction, presenting a tumor a little to the right and near the median line. Folds of the intestine overlay the tumor, and it was possible to hear the gas and fluid gurgling upon palpation. Rectal examination revealed a soft tumor and fluctuation was easily elicited. He thought he had an extra-peritoneal tumor. He made a laparotomy and found a large abscess in the peritoneal cavity, opened it and drained it. The post-mortem, three days after, revealed these conditions: The colon and a loop of the small intestine were in process of uniting, the colon being in front of the tumor. Three inches of small intestine surrounded this mass held down in the pelvic cavity, their lumen being obliterated by the distention of the abscess and the pressure caused by this abscess, which had been occasioned by a long-continued perityphlitis and appendicitis. At no point did he think that this abscess could have been reached without perforating the intestine itself. The question which had troubled him most, and he thought it a practical question, was: Have we or not in perityphlitis, typhlitis, appendicitis, etc., a better chance to interfere after suppurative peritonitis has developed? We may be able to determine that we have a local peritonitis, but do not know whether it is suppurative or not, and the question arises, Does our patient have a better chance for recovery after it has become suppurative? In regard to the incision, he was not so sure that the inguinal region is the best line. In many cases it will answer, but not as a rule, because there is no part of the intestine so frequently displaced as this one.

Dr. J. McF. Gaston, of Atlanta, inquired whether the cæcum was seriously involved in the trouble, because he considered this quite different from mere perforation and extravasation into the peritoneal cavity. He did not understand whether there was, in this case, any precaution against permitting the fecal matter to gain access to the peritoneal cavity. If feces had thus passed into the peritoneum, it would be highly proper thoroughly to wash out the cavity.

Dr. McMurtry replied that his was a typical case of perforative peritonitis. This was a case of septic peritonitis, arising from the perforation. Peritonitis is a septic disease. Of course, it was a case of infective peritonitis from the infection that was in the bowel. It seemed to him that confusion had entered the discussion from the fact that no distinction had been made between laparotomy and the opening of an abscess. If you have perforation, and an abscess forms in the tissue, opening that is not laparotomy.

Dr. J. Price, of Philadelphia, opposed the use of the aspirator and trocar. With them we make a small opening, drain off the accumulated matter, but see nothing. Surgeons who have had no training have naturally some fear of laparotomy. We have, however,

learned to regard it as an operation which is attended with comparatively little danger. At present there is nothing so simple as dealing with pus. He had no fear of deluging the peritoneum with pus. With regard to diagnosis, he stated that he would prefer to depend upon the diagnosis made by the general practitioner, than that of a surgeon, in affections of this region.

DR. E. M. MOORE, of Rochester, stated that he had listened to the papers with intense interest, but he had failed to hear one or two things which come within the experience of every surgeon. Now, is it not the experience of every one to have cases of what used to be called perityphlitis—attacks of pain in the right side, coming on day after day and getting well, and the rule is that they get well? He had seen it over and over again, and his experience has always been that if the inflammation was sufficiently local it was sure to get well. Did he understand Dr. Price to say that the operation of cutting into the peritoneum is absolutely free from danger? He must confess that he was utterly astounded! He had heard it stated that immunity pertained to diagnostic laparotomy, but that was not stated here. He then referred briefly to the differentiation of phantom and other tumors of the abdomen from affections of the cæcum, and concluded with the statement that he had not found the operation of laparotomy so innocent as it is claimed by some.

DR. MCLEAN, of Ann Arbor, remarked that it seemed to him bold to say that the peritoneal cavity can be opened with impunity. It would be a mistake to permit the dictum to pass from the Surgical Section of this Association that the abdominal cavity can be opened with perfect safety.

AFTERNOON SESSION.

DR. R. HARRY REED, of Mansfield, Ohio, read a paper on

INTESTINAL OBSTRUCTION IN ITS SURGICAL ASPECTS.

The aim of the paper was to prove by the presentation of cases, that pseudo and "veracious" obstruction of the bowel exist, both ante-mortem and post-mortem. A number of cases were reported, in each of which he had elicited all the ordinary symptoms of intestinal obstruction, and yet in not a single case was there any real obstruction. Two of the cases were not relieved by surgical interference, and collapse and death were the termination.

GENERAL BUSINESS.

DR. S. W. GROSS moved that hereafter, when titles of papers to be read before the Section are forwarded to the Secretary, they shall be accompanied by a set of conclusions drawn from the paper, and that in case this requirement is not complied with, the title of the paper shall not be published as a part of the programme.

Adopted.

OFFICERS FOR THE ENSUING YEAR WERE ELECTED AS FOLLOWS:

President.—N. P. Dandridge, M.D., of Cincinnati, Ohio.

Secretary.—W. O. Roberts, M.D., of Louisville, Kentucky.

DR. CHARLES B. PENROSE, of Philadelphia, presented a paper on

INTESTINAL OBSTRUCTION IN ITS SURGICAL ASPECTS.

Surgical operations are necessary in intestinal obstruction for two purposes—for diagnosis and for treatment. The inefficiency of the treatment now generally employed is shown by the mortality following obstruction. This is a mere mechanical occlusion of the alimentary tract, which, theoretically at least, is always amenable to some form of treatment. The mortality of all kinds of acute obstruction is nearly one hundred per cent. when treated by medicinal means alone; and according to Rockwell's table, published in the *Annals of Surgery* for February, 1888, the mortality in all cases of intestinal obstruction which were submitted to operation, between the years 1877 and 1887, was forty-six per cent. The mortality after medicinal treatment is due to the inability of drugs to overcome the mechanical occlusion, and the high mortality after surgical treatment is due to the too great delay of the operation, which also renders laparotomy for intestinal obstruction more fatal than the same operation for other cause. Enterotomy and colotomy once frequently resorted to, are now rarely employed for intestinal obstruction. They are safe operations, and generally empty the intestines; they do not, however, relieve the obstruction. They are made in the dark; the opening may be made below the obstruction; the jejunum may be caught and the patient perish from inanition; a gangrenous loop of intestine may be left in the abdomen, or a cancerous mass, and cause death. As primary operations they are rarely demanded.

He preferred the median abdominal incision in laparotomy for obstruction, owing to the liability to anomalous intestinal localization, the difficulty of locating the obstruction, and the possibility of multiple obstructions. One of the most useful guides to the operator, in his search for the obstruction, is the finding of a loop of the intestine which is more congested and darker than its neighbors. The distended loop should be followed from the stomach toward the rectum. Collapsed loops of intestine will also lead in the opposite direction to the obstruction. These signs failing, the systematic search should be begun; hernial pouches being usually first examined.

The various methods for relieving the obstruction were next reviewed. The formation of an intestinal anastomosis, an old method recently brought into notice by Senn, has been performed but twice on man, with fatal result. The improved technique introduced by Senn promises to bring it into successful application. If an obstruction cannot be relieved or resected, an artificial anus must be formed. The operation of resection of intestine was briefly described, as performed by Treves. The production of an artificial anus, after resection, was carefully described. With reference to the operation, the speaker said that he admitted that an artificial anus is a misfortune to be avoided if possible, and that the ideal method, in case of obstruction, where resection was necessary, is immediately to restore the continuity of the intestine; a procedure not always attainable. He did not think that improved technique would ever do away with the production of an artificial anus. The method of closing an artificial anus was next described by the essayist; then the closure of the external abdominal incision.

Referring to the production of artificial anus, for ob-

struction, he said that its value is so great that he would urge its use not only for the peritonitis and distention following strangulation of the intestines, but also in peritonitis or intestinal paralysis of any other origin where there are great abdominal distention and fecal accumulation. Continual irrigation of the peritoneum, its application, and the method of its performance were made the subject of especial consideration.

In conclusion, he asked attention to the following points:

The use of an exploratory laparotomy in cases where the diagnosis of intestinal obstruction is doubtful. The necessity of early operation in the treatment of this condition. The necessity of a temporary artificial anus after resection for obstruction. The value of a temporary artificial anus as a means of avoiding subsequent obstruction when there has been great abdominal distention and fecal accumulation. The value in some cases of continued irrigation of the peritoneal cavity.

Dr. N. Senn, of Milwaukee, then read, by abstract, a paper on

RECTAL INSUFFLATION OF HYDROGEN GAS AS AN INFALLIBLE DIAGNOSTIC MEASURE IN THE DETERMINATION OF PERFORATION OF THE INTESTINE, ETC.

(See page 569.)

During the reading of his paper, he made three experiments in demonstration of his method of determining the presence of intestinal perforation. In the first, a dog was thoroughly anæsthetized, hydrogen gas was then made to enter the bowel through the anus by being forced from a four gallon balloon through a rubber tube attached to a nozzle like that of the ordinary fountain syringe. A weight equivalent to about one hundred and fifty pounds was placed upon the balloon. A second tube was passed into the œsophagus, and in an incredibly short time the hydrogen escaping from the œsophageal tube was ignited from a spirit lamp, demonstrating that the gas had been forced through the entire length of the alimentary canal. The second experiment was also made upon a dog thoroughly anæsthetized. An incision was made in the abdominal wall a little below and external to the umbilicus; a loop of intestine, the small intestine, was withdrawn and an incision made into it and the bowel returned. The hydrogen was then forced into the rectum, and in a very short time was ignited as it escaped from a tube inserted into the abdominal wound. Finally, the same demonstration was made upon a dog, under anæsthesia, after receiving a pistol-shot wound perforating the intestine. Each of the demonstrations was a perfect success.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, May 1, 1888.

The President, George W. Jacoby, M.D., in the Chair.

Dr. Leonard Weber presented a paper upon

PARALYSIS AGITANS, WITH CASES.

The disease had been first described by Parkinson in 1817. Charcot had differentiated it from disseminated sclerosis. Progressive tremor and muscular weakness affecting first one limb and subsequently spreading to other limbs were its chief symptoms. According to Charcot, the head was always respected. There was apparent diminution of muscular force, and in well-advanced cases movements were slow and uncertain. There was loss of the faculty of equilibrium. In trying to walk the patient would run, appearing to be running after his lost centre of gravity. There was bending of the body to a stooping posture and an immobile facial expression with a fixed stare. Death occurs from marasmus or intercurrent disease. The onset was insidious, a hand, a foot, or even a thumb had been first affected. The crossed form was rare, and the hemiplegic form was more common than the paraplegic. Charcot referred to cases in which pain had been the first symptom, tremor following later on. Deglutition was not interfered with, the bladder and rectum but seldom. There might be annoying cramps, but contractures did not occur. Deformity might be present, giving to the hands the aspect of arthritis deformans. Glycosuria had been noted. This complication had been present in a case of his own. In an advanced stage there was disturbance both of thought and action. Neuralgias were present with a sense of fatigue and restlessness, requiring frequent change in position. There was a subjective feeling of heat.

Marked melancholia or general hallucinations may be present with even maniacal attacks. Remak had differentiated a cerebral and spinal form. In two of his own cases cerebral, and in two others spinal symptoms had predominated. Nothing definite to account for the tremor had been found in either the brain or cord. It is a disease which affects the lower strata of society particularly, and men rather than women. It is a disease of advanced life, though Meschede has reported a case in a boy of twelve years, where it had developed after a kick in the face by a horse; and Duchenne one in a man of twenty. It is said to be more frequent among English and American people than among those of other nations. Powerful emotional and moral shocks have produced it, also irritation of the peripheral nerves by traumatism. Prolonged damp cold is a cause; also, in the reader's opinion, sexual excess. The reader had not observed that syphilis had anything to do with its production. Heredity is said not to be a factor, but in one of his own cases the patient's father and two brothers, and in another one brother, had been affected.

Arsenic, ergot, and nitrate of silver have no retarding action. The comfort of the patient may be increased by using Brown-Séquard's bromide mixture, leaving out the iodide of potassium. Hyoscyamine had not been of any value in the reader's experience, producing head symptoms and even maniacal attacks. He had used the amorphous preparation in one-tenth grain doses. Antipyrin in fifteen to twenty grain doses gave rest at night in some cases; chloral, too, had been useful, but the effect of both had been transitory. He had found paraldehyde superior to either as a hypnotic in these cases. It was given in emulsion, fifteen to thirty grains to a dose. It did not affect the stomach, did not weaken the heart, and did not lose its efficiency by use. The galvanic current relieves the feeling of fatigue. Tepid half baths with cold affusions to the head and spine are even more effective and prompt. The reader has had twelve cases, five of whom had been under his

care sufficiently long for study. He briefly referred to these cases.

Case I. was a man of seventy years, in whom the disease had existed for twenty-four years. The patient is still able to get about. The disease was produced by cold.

Case II. was a woman of seventy years, first seen by the reader in 1884. This patient was a very cultivated lady, with fine intellect, and a great knowledge of men and affairs. The disease dated from 1876, and an occasion upon which she had received news of the illness of a loved daughter. The expression of face in this case was markedly sad and immobile. There was little neuralgia, no spastic paralysis, and no contractures. A peculiar feature was atrophy of the epidermis of the hands, forearm, feet, and legs. Death occurred in 1887 from pneumonia. Nightly suffering had been in this case relieved by paraldehyde during six months.

Case III. was a man of fifty-three years, a German, addicted to drinking and smoking in excess. The disease had existed for seven years and glycosuria was present. The weight, which had been three hundred and twenty pounds, had been reduced, but not below two hundred and eighty pounds. Œdema of the legs had been present in this case for six months. Paraldehyde in a dose of thirty grains at bedtime gave a good night's rest.

Case IV., a German, aged sixty-three years, was a market dealer, presenting as causes for his illness exposure to rheumatic influences connected with his business, and sexual excess. The right hand had been first affected, and in the course of the following year the arm and shoulder. The right leg had been seized during the last six months. There was paræsthesia but no neuralgia in this case.

Case V. was a German, aged seventy-two years, whose father and two brothers also suffered from the disease. The left upper and lower extremities only were affected, thus differing from the usual hemiplegic form, which affects the right side. It was to be remarked, however, that this patient was left-handed. The shaking was violent in this case. The patient was easily excited, and suffered with vertigo and headache.

DR. C. L. DANA felt that the obscure points of pathology and treatment should receive consideration. We do not know the nature of the disease nor how to cure it. It was his opinion that paralysis agitans is a degenerative disorder of the voluntary motor system. The sensory symptoms and the mental inquietude are explained by the close relations between the motor and sensory centres. The speaker had had twenty cases under his own observation and had seen thirteen others in the Bellevue out-door department. 2 had been between thirty and forty years of age; 5 between forty and fifty; 13 between fifty and sixty; 9 between sixty and seventy, and 4 between seventy and eighty. Of 31, 20 had been males and 11 females. Of 34 in whom the race had been mentioned, 26 had been Irish; 6 German; 1 Russian, and 1 born in the United States. The Celtic element had thus greatly preponderated, a fact not entirely explained by the large percentage of Irish attendants at this dispensary. The disease seemed increasing in frequency. From 1876 to 1879 the Bellevue dispensary had presented but 7 cases of paralysis agitans in a total of 2300 cases; while from 1885 to 1888, 11 were recorded out of a total of 2200.

He could corroborate the statement that rheumatic influences are active in its production. He too had had a case complicated with diabetes, and he had had 4 cases in which the head had been affected. He thought this not uncommon. It might be shown in the muscles of the angles of the mouth and tongue. In treatment, hyoscyamine had given the best results. He had used, however, not the amorphous but the crystalline form in $\frac{1}{100}$ to $\frac{1}{60}$ grain doses. Given thus, it had never failed to exert a palliative action.

DR. M. A. STARR called attention to a monograph upon paralysis agitans, by Anton Heimann, published in Berlin six weeks ago, and only last week received here, in which the theory of cortical origin referred to by Dr. Dana was supported by the report of a case. In this case, which had developed under the writer's observation, the four limbs were affected. The lesion could be located as hemorrhage into the internal capsule. Coincidently the paralysis agitans had ceased upon the hemiplegic side. The inference was that the paralysis agitans was due to impulses from the cortex through the internal capsule, and that the irritated cortical centres were cut off from the muscles by the injury. Gowers had demonstrated, too, that the rate of vibration in paralysis agitans was 8 per second. It is known that irritation of the cortex, of a moderate degree, in monkeys, produced tremor of the muscles characterized by 8 vibrations per second.

In regard to the extension of the tremor to the head: while Charcot had stated that the head never was affected, the majority of German observers among whom were Seeligmüller, Strumpell, and Heimann, added to Gowers, in his new book, had found the head affected in a considerable proportion of cases. The speaker had had 7 cases of paralysis agitans under his care during the last two years. The tremor had affected the head in two of these cases. He could join Dr. Dana in his endorsement of hyoscyamine, given in the crystalline form and $\frac{1}{100}$ grain doses. This remedy had had a good effect in all of the cases which he had seen.

DR. L. C. GRAY considered the origin of the tremor very obscure. He recalled a case presenting the typical symptoms of disseminated sclerosis. The patient was under observation in the hospital for a year and a half, and the post-mortem showed nothing but a cortical meningitis, no lesion in the brain or cord. The speaker did not agree with Dr. Weber that the diagnosis between paralysis agitans and disseminated sclerosis was in all cases easy to make. Voluntary tremor might be present in both, and in the earlier stages diagnosis might be impossible. One of the most typical cases which he had known had had movements of the head. This case was that of a woman of seventy-five years, who had had paralysis agitans for thirty years. It had started one day, when on a ferry-boat, upon seeing a baby fall into the water, and buoyed up by its long clothes float down the stream. Upon getting home she had found her upper lip quivering like that of a rabbit. This had been the commencement of a widespread affection.

DR. GRAEME HAMMOND had seen three or four typical cases of face tremor. In a case of which he had the brain, the paralysis agitans had been present for eight years. There had been no change in the voice, but during the last year there had been paralysis of the tongue, lips, throat, lungs, and heart, which finally

terminated life. Post-mortem there was absolutely nothing found; no softening in the medulla and no change in the cortex. A few years ago, the speaker had collected all the reports of autopsies which he could find of cases of athetosis, chorea, ataxic tremor, and paralysis agitans.

Where any lesion was found it occupied the position of the gray nerve cells of the optic thalamus, corpus striatum or cortex. Where spastic spasm was present, either combined with the tremor, or alone, the white fibres of the internal capsule were affected as well. Where spastic spasm was not present, the lesion did not affect these tracts.

Dr. Rockwell had had two or three cases under forty years. He thought that the younger cases responded best to palliative treatment. He recalled a case from Peru which he had treated with hyoscyamine $\frac{1}{100}$ grain dose and the galvanic current. This patient had returned to his home apparently cured. The symptoms returned, he came back, was again subjected to the treatment, was again cured and had remained well for a year.

Dr. Sachs regarded Dr. Heiman's argument as ingenious but not conclusive. Hemorrhage into the internal capsule is the commonest cause of hemiplegia in middle life. Hemiplegia is not very uncommon in the course of paralysis agitans and it does not interfere with the tremor in the usual case. In regard to the involvement of the head, he had a case now under treatment in which the head was affected. He used hyoscyamine in the crystalline form, and had found it so reliable as a palliative that no other drug was required in his experience. Even in severe cases the tremor was lessened by means of it.

Dr. Petersen referred to the fact that when in the Poughkeepsie Asylum while administering the hydrobromate of hyoscyamus for headache he had incidentally relieved the tremor of paralysis agitans.

Dr. Weber thought that Charcot's rule for the involvement of the head would be found in the main correct. General shaking would move the head, but tremor of the intrinsic muscles he thought rare. In regard to Dr. Rockwell's case, he would hesitate about pronouncing a cure. Paralysis not unfrequently presented intermissions of a year or two but would ultimately return. In regard to the hyoscyamine, he had tried it some years ago; possibly the quality had not been as good as that now obtained. He would again give it a trial in the crystalline form.

CORRESPONDENCE.

EXSECTION OF EXTRAUTERINE PREGNANT CYSTS.

To the Editor of The Medical News,

Sir: I notice that in your leading article of March 24th you say: "Mr. Tait denies that a diagnosis can be made prior to rupture, which may be correct so far as his personal observation has extended." Permit me to correct this, it is not what I have said, it is only what I am made to say by a well-known American writer on the subject, who appears to delight in misrepresenting me. What I do say is, what Campbell and Parry, and many others have said, that extrauterine pregnancy can rarely be diagnosed before the period of rupture, because we rarely see the cases before that time. The patients have so few symptoms that they do not seek assistance. I have now seen nearly seventy cases, and have seen only one before the period of rupture. The patient had no symptoms which indicated pregnancy, but I diagnosed occlusion and distention of a tube, and I advised its removal. In three days it burst, and the bursting I diagnosed, but as a case of burst pyosalpinx, I only discovered the differential mistake at the operation.

I am, etc.,

Lawson Tait.

Birmingham, May 1, 1888.

OLIVE OIL IN THE TREATMENT OF GALL-STONES.

To the Editor of The Medical News,

Sir: In reading the article on "Gall-Stones or Soap?" in your issue of May 12, 1888, one is struck by the fact that the patients were relieved of pain in the cases treated by Dr. D. W. Prentiss, as was also the case with those mentioned in the article by Dr. Thomas W. Streets, U. S. N.

A few weeks ago I was called to see an officer who was laboring under an attack of hepatic colic, and who is subject to such attacks; remembering my friend, Dr. Streets' report, I gave a tumbler of olive oil, and put the patient under the influence of chloroform at once. When the chloroform passed off, I gave 15 grains of bromide of sodium every three hours, and he slept comfortably, with short intervals of wakefulness, for twelve hours. During the day two more doses of olive oil were given, each containing half a tumbler of oil. The oil did not act upon his bowels, and it took a good deal of Hunyadi-Janos water to move them; no gall-stones or other concretions were found in his stools, and he made a rapid recovery.

The point I wish to call attention to is that after the first dose of oil the patient was relieved of pain, and the delirium which had existed passed away. I omitted to state that a hot water bag was kept over the seat of pain for some hours.

His former attacks were of long duration, and he then found gall-stones in his stools. Does it not seem as if the olive oil has some specific action in these cases?

Yours truly,

A. A. Hoehling.

U. S Naval Hospital, Washington, D. C.,
May 18, 1888.

NEWS ITEMS.

Are Permanent Solutions of Bichloride of Mercury a Necessity?—The *American Druggist* for March, 1888, writes that, in connection with the answer to a query, relating to the stability of solutions of corrosive sublimate intended for antiseptic purposes, it seems fair to say that there may be good reason to doubt whether it is desirable to render the solution permanent. It is not improbable that the efficacy of this preparation consists very largely in the nascent chlorine liberated during the conversion of the bichloride into calomel; and while, from a pharmaceutical point of view, it may be more satisfactory to have a solution which does not deposit the calomel, therapeutically such a solution may be the least desirable.

An Analysis of Preparations for Bleaching Hair.—The *American Analyst* of March 1, 1888, reports that recent analyses have shown that of the preparations for bleaching the hair to "the delicate golden shade so much admired by the court circles of Europe, and the best society of the United States," to quote from a label on one of the bottles, all depend for their action upon the decolorizing and corrosive influence of nascent oxygen or nascent chlorine. The bases used in the various nostrums for this purpose are peroxide of hydrogen, aqua regia, and bronzer's acid. Peroxide of hydrogen is the mildest and most innocuous of the trio named. It is a colorless liquid which destroys the natural color of the hair, and which, if used long enough, turns it an unnatural grayish-white. It is rather expensive, and is, therefore, used much less than the two other acids. It produces sores upon the scalp, and gives rise to skin complaints that resemble tetter, salt-rheum, and scald-head. The two acids are equally vile. They attack and eat the hair and skin alike. The former they partly bleach and partly burn to a handsome gold color; the latter they stain to about the same hue as does a light application of iodine. Besides the dermatologic troubles named, they cause maladies hardly distinguishable from eczema and erythema. One curious disease that they cause is an inflammation of the cells of the hair follicles. The cellular walls break down and lymph, and often blood is extravasated in appreciable quantities. All three bases produce falling out of the hair and premature baldness.

The Suppression of Quack Medicines in Germany.—Kultusminister von Gossler recently announced his intention of securing the coöperation of the Imperial Government in suppressing all advertisements of secret remedies throughout the German States.

Honors to von Brücke.—The Emperor of Austria has conferred on Hofrath Professor E. Brücke, Professor of Physiology in the University of Vienna, the Order of the "Ehrenzeichen für Kunst und Wissenschaft." This distinction was created by the Emperor last year, and has hitherto, as far as medical men are concerned, been conferred only on Hyrtl.

The Decrease in the Prices of Drugs.—The following figures are taken from an old price-book of one of the leading drug stores in this city, and show the great decrease in price of many medicines in recent years: Acid hydrocyanic, 25 cents a drachm; acid succinic, $300 an ounce; alcohol, 25 cents a pint; brucine, $50 an ounce; delphine, $80 an ounce; emetine, $36 an ounce; linium usitatissinium, 17 cents a pound; morphine, $50 an ounce; narcotine, $100 an ounce; sulphas cinchonæ, $10 an ounce; sulphas quininæ, $1.50 a drachm; hatcase (oiled silk), $1.50 a yard; Prussian blue, 25 cents an ounce. Tinctures were 6 or 12 cents an ounce; ointments, 12 cents an ounce; and syrups, 6 cents an ounce by weight, or 8 cents by measure.—*Popular Science News*, April, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 15 TO MAY 21, 1888.

TOWN, F. L., *Major and Surgeon* (U. S. Army).—Post Surgeon at the Post of San Antonio, Texas, will take charge of the office of the Medical Director at these Headquarters, and perform the duties of that officer during his absence on leave.—*S. O. 51, Department of Texas*, May 11, 1888.

BROWN, HARVEY E., *Major and Surgeon*.—Directed to continue on duty at Fort Barrancas, Florida, until further orders.—*S. O. 115, A. G. O.*, May 18, 1888.

WYETH, M. C., *Captain and Assistant Surgeon*.—Will be relieved from duty at Fort Barrancas, Florida, at the expiration of his present leave of absence, and will report in person to the commanding officer, Fort Huachuca, Arizona, for duty at that post.—*S. O. 115, A. G. O.*, May 18, 1888.

KNEEDLER, WILLIAM L., *First Lieutenant and Assistant Surgeon*.—Will accompany, from Fort Snelling, Minnesota, that portion of the Twenty-fifth Infantry destined for Fort Shaw, Montana Territory. From Cascade, Montana Territory, he will accompany the portion of the Third Infantry *en route* from Fort Shaw, Montana Territory, to Fort Snelling, Minnesota.—*S. O. 40, Department of Dakota*, May 14, 1888.

WOOD, LEONARD, *First Lieutenant and Assistant Surgeon*.—Leave of absence extended two months.—*S. O 114, A. G. O.*, May 17, 1888.

Par. 12, S. O. 49, Department of Texas, May 5, relative to HARRIS, H. S. T., *First Lieutenant and Assistant Surgeon*, accompanying the Eighth Cavalry to the Department of Dakota, is amended by par. 1, S. O. 50, Department of Texas, May 9, 1888.

Par. 1, S. O. 50, Department of Texas, May 9, is revoked by par. 1, S. O. 51, Department of Texas, May 11, 1888.

HARRIS, H. S. T., *First Lieutenant and Assistant Surgeon*.—Will be relieved from duty at Camp Pena Colorado, and proceed to San Antonio, where he will report to the commanding officer of the battalion of the Sixteenth Infantry, for duty as Medical Officer with that battalion to its destination to the Department of the Platte. Upon completion of this duty, he will return to his proper station, Camp Pena Colorado, Texas.—*S. O. 51, Department of Texas*, May 11, 1888.

Par. 15, S. O. 49, Department of Texas, c. s., relative to CLENDENIN, PAUL, *First Lieutenant and Assistant Surgeon*, accompanying the Sixteenth Infantry to its destination, is revoked by S. O. 51, Department of Texas, May 11, 1888.

CLENDENIN, PAUL, *First Lieutenant and Assistant Surgeon*.—Will proceed from Fort McIntosh to Fort Davis, and report to the Commanding Officer, Eighth Cavalry, for duty as Medical Officer with that regiment on its march to Fort Concho, from which place Lieutenant Clendenin will return to his proper station.—*S. O. 51, Department of Texas*, May 11, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING MAY 19, 1888.

KERSHNER, EDWARD, *Surgeon*.—Detached from the U. S. Steamer "Pensacola," and wait orders.

SAYRE, J. S., *Assistant Surgeon*.—Detached from the U. S. Steamer "Pensacola, and wait orders,

JONES, W. H., *Surgeon*.—Detached from the Navy Yard, League Island, and ordered to the "Pensacola."

COOKE, G. H, *Surgeon*.—Ordered to the Navy Yard, League Island.

CRAWFORD, MILLARD H., *Passed Assistant Surgeon*.—Ordered to the "Vandalia."

WIEBER, F. W. F., *Assistant Surgeon*.—Detached from the "Vandalia," and ordered home.

STONE, E. P., *Assistant Surgeon*.—Detached from the Naval Hospital, New York, and ordered to the "Pensacola."

HARMAN, G. E. H., *Passed Assistant Surgeon*.—Commissioned a Surgeon, May 12, 1888.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked. Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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ORIGINAL ARTICLES.

NOTE ON THE TREATMENT OF SYPHILIS BY THE HYPODERMATIC INJECTION OF CALOMEL.[1]

BY J. C. WILSON, M.D.,

ATTENDING PHYSICIAN TO THE PHILADELPHIA HOSPITAL AND TO THE HOSPITAL OF THE JEFFERSON COLLEGE OF PHILADELPHIA.

THE treatment of syphilis by the intramuscular injection of calomel, as first practised by Scarenzio, in 1864, was prominently brought to the notice of the profession in Germany by Neisser, in September, 1885. Since that time a large number of communications upon this subject have appeared in the German, and more recently in the French journals. It is a remarkable fact, however, that this method of treatment has received but little notice among English and American physicians. Two papers only, those of Bloom and Morrow, have thus far appeared in American literature. Neither of these has embodied any extended clinical observations, a fact that is more noteworthy in view of the multiplying reports of the growth of this method of treating syphilis on the Continent, and especially in Germany.

The object of the present communication is to call attention to the details of this treatment as practised by the writer, and its results in a limited series of cases. The method is the natural outcome of efforts to render the treatment of syphilis more exact, and to keep it more completely within the control of the physician by the administration of specific remedies hypodermatically. It marks a step in the advance of the therapeutics of syphilis beyond the hypodermatic use of the soluble salts of mercury, as the bichloride, formerly advocated, and still occasionally employed in cases in which it is necessary to obtain the full effect of mercury rapidly. The difference between the therapeutic effects of the soluble and the insoluble mercurial salts hypodermatically injected is, however, an important one. In the case of the former, absorption readily occurs, and the effects of the drug are manifested with great promptitude; thus, Hutchinson quotes Bloxam as saying that one-third of a grain of bichloride of mercury dissolved in twenty drops of water and repeated hypodermatically on three consecutive days, will usually salivate freely; whereas the insoluble salts, introduced by the hypodermatic method, undergo chemical changes in the presence of the fluids of the tissues with comparative slowness, thus keeping up a prolonged and relatively mild influence until their chemical conversion and absorption are completed. The gradual nature of this process is shown by the fact that, in one of my cases, slight ptyalism occurred on the ninth day after the injection of one grain of calomel. Much difference of opinion has been expressed as regards the relative advantages of the mode of treatment under consideration; the greater number, however, of those who have published their observations regard it as possessing certain positive advantages over the methods hitherto practised. Among these advantages may be named the following:

A. As over the administration of the preparations of mercury by the mouth:

1. The absence of any directly unfavorable influence upon the digestive apparatus (nausea, loss of appetite, colic, diarrhœa), especially in cases where mercury in sufficient doses is not well borne.

2. Precision of dosage.

3. Control of the administration by the physician, and, therefore, better opportunity, especially in private practice, to observe the effect of the drug, as well as the general condition of the patient, at fixed intervals.

4. Simplification of the treatment as regards the patient himself, and diminution of the liability of his condition becoming known.

5. Promptness of action.

6. Diminished risks of salivation.

B. As over treatment by inunction, in addition to the above advantages, we have:

1. Absolute cleanliness. This point is of much importance in private practice. Mercurial inunctions are not acceptable to the better class of patients, and are feasible only in cases where the symptoms are urgent, and the patient fully realizes the gravity of the situation.

2. Convenience of administration in all respects.

C. As over the treatment by fumigation, etc., in addition to the above, we have:

1. Comparative safety of the method of treatment.

2. Absence of the necessity for attendants, and for the use of apparatus of any form on the part of the patient.

D. As over other forms of treatment in ordinary use, the fact that stubbornly rebellious symptoms

[1] Read before the College of Physicians of Philadelphia, April 4, 1888.

often yield with promptness to hypodermatic injections of the insoluble salts.

The disadvantages of this treatment, as compared with the methods in general use, are:

1. Pain.
2. Danger of the formation of abscesses.

It may be said at this point that both of these disadvantages are reduced to a minimum by attention to the details of the little operation, and especially by the observance of the rule to introduce the medicament deeply into the substance of the muscle.

Some degree of burning pain is, however, produced by almost every injection. It is, as a rule, moderate, and comes to an end in the course of a few minutes. It is, on the contrary, however, sometimes quite severe. Exceptionally, the injection has caused no pain whatever beyond the mere prick of the needle.

The danger of the formation of abscesses is very slight when the injection is properly performed. Antisepsis must be complete as regards the material injected, the syringe, and the patient's skin at the point of puncture, and the calomel must be thrown deeply into the muscular substance, the needle being entered perpendicularly to the plane of the surface. The most convenient site is the lateral aspect of the gluteal region in the fossa behind the great trochanter. Smirnoff and Sofiantini state that calomel injections in this region are never followed by abscesses. Shadek says "abscesses never occur after deep intramuscular injections of the quicksilver preparations; coagulations—that is to say, nodes and induration at the point of injection—are rarely seen." Watrazewski saw only 4 abscesses follow 257 calomel injections. In my own private practice, in thirty-two injections in six patients once only slight fluctuation occurred at the seat of puncture. It disappeared in the course of a few days. In the cases treated at the Philadelphia Hospital, several small, superficial abscesses developed at the point of injection. These were among the earlier cases, and the procedure was practised without due regard to antisepsis.

On the other hand, Kopp and Chotzen counted 48 abscesses after 768 injections of 0.1 of a gramme (1.5 grains) of calomel. Krecke caused suppuration of the subcutaneous tissue in 21 instances out of 171 injections, while Monti, Bockhardt, and others, have abandoned the treatment on account of this danger.

There can be no doubt, in view of these varying results, that the occasional formation of abscesses is due to faults in technique. It is, therefore, largely, if not indeed wholly, avoidable, and constitutes no real objection to the treatment.

Two of the insoluble salts of mercury have been used, calomel and the yellow oxide. My own observations have been made with calomel alone. Neisser suspended the calomel in water with a little gum Arabic. The original formula was

Calomel,	
Sodii chlorat.	āā 5.0.
Aquæ dest.	50.0.
Mucilag. acaciæ	2.5.

The formula given by Bloom is,

Calomel by vapor . . .	5.0 (℈iv).
Sodii chloridi	1.25 (℈j).
Aquæ dest.	50.00 (f℥xiijss).

It is obvious that this mixture defeats the object of the treatment in view of the rapid chemical changes by which bichloride of mercury and metallic mercury are formed at the expense of the calomel. After some experience, calomel was administered by various observers in suspension in liquid vaseline, by others, in pure olive oil. One of the difficulties of the injection of calomel is found in the liability of the needle of the ordinary hypodermatic syringe to become clogged. For this reason both the vaseline and oil are objectionable. My own injections, after a few early trials with the above substances, have been made with glycerine, as suggested by Smirnoff, and in order to secure greater accuracy of the dose and to overcome the tendency of the calomel to settle at the bottom of the vial, I order the doses from the apothecary, separately, in drachm vials, each containing

Calomel by vapor	grain 1.25
Glycerine (pure)	♏ xv.

A number of these vials are ordered at once, and are protected from the light. At the time of using, the cork is removed and a few minims of recently boiled water are forcibly injected from the needle of the syringe into the bottle in order to displace the calomel that has settled. The bottle is then thoroughly shaken until the calomel is suspended. The mixture is next poured into a little conical porcelain capsule, and quickly taken up through the nozzle of the syringe. The needle is then adjusted, the air expelled, and the operation performed in such a manner that the drug is thrown into the muscular mass. A grain of calomel, approximately, is the usual dose. The formula calls for one and a quarter grain for the reason that notwithstanding the greatest promptness, a certain amount of the calomel remains at the bottom of the capsule, and a little in the syringe itself.

The antiseptic precautions consist in thorough disinfection of the apparatus employed immediately before each injection by means of water boiled for some minutes in a test-tube, and in the careful cleansing of the skin at the point of puncture, by a solution of corrosive sublimate 1 : 1000. Burning pain usually follows, lasting for some minutes, and the circumscribed deep infiltration, which may be detected after the injection, becomes the seat of moderate tenderness, and more or less induration, lasting for some days, or even a week or two.

When we come to consider the transformations which the insoluble mercurial salts undergo when thus injected, we enter a field as yet but little investigated. It is probable that to a slight extent chemical reactions take place with certain organic principles, notably albumen, with the formation of albuminate of mercury, but that the greater part of the calomel undergoes in the constant presence of the alkaline fluids of the tissues gradual conversion into a double chloride of mercury and sodium. In this respect it follows the course of mercury introduced into the economy by way of the alimentary canal.

The following cases were treated in the Philadelphia Hospital, and the notes are condensed from the ward histories taken by Dr. Hutchinson, Resident Physician.

Case I.—J. A., male, æt. forty-eight; admitted September 23, 1887, to Medical Ward 2, bed 10; Irish, a store-porter, moderate drinker. No hereditary tendency to disease of the nervous system. Chancre in 1861 or 1862; lymphatic enlargement; stubborn faucial and buccal symptoms; no recollection of a rash; prolonged treatment by mercury. In 1867, spinal symptoms, staggering gait, dizziness, and difficulty in holding his water. Systematic treatment for two years, with complete recovery. He then married; wife's first pregnancy resulted in miscarriage. The second child was healthy, and is still living. Four children born subsequently died in early infancy from "marasmus." In 1875 there was recurrence of the spinal symptoms; he then was treated in the Orthopædic Hospital; states that recovery rapidly took place under strychnia and increasing doses of iodide of potassium; continued well until the spring of 1887, when spinal symptoms recurred, together with loss of sexual power and desire, marked ataxia, burning sensations and numbness, especially in the limbs and feet. Knee-jerk much exaggerated in both legs. Examination of the eyes by Dr. de Schweinitz showed insufficiency of the internal recti, oval disks distinctly gray in the second layer, and distention of the lymph sheaths along the arteries and veins; no distinct retinal changes except haziness. Diagnosis as to eyes, probable early gray degeneration of the optic nerve. Hypodermatic treatment from Nov. 11, 1887, to Feb. 17, 1888; total number of injections, seven; result, very decided improvement. Patient transferred to the surgical ward, for the treatment of cystitis.

Case II.—G. M., male, æt. thirty-seven; admitted to Medical Ward 2, bed 2, September 28, 1887. Primary sore occurred in 1876; secondary lesions of the mouth and throat, with falling of the hair; no recollection of a rash. Two years later, symmetrical, circumscribed ulcers of the shoulders and thighs, the scars of which remain. In 1879, sharp pains in the knees and ankles, lasting for some months, and disappearing under treatment. In 1886, acute pain and swelling of the knees and ankles, always aggravated at night, kept him in bed for eleven months. Upon admission to the Hospital, there was well-marked periostitis of the clavicles, tibiæ, and radii. Slight improvement only under large doses of iodide of potassium. On December 11, 1887, other medication having been stopped, he was given calomel hypodermatically, and had in all five injections at intervals of a fortnight. Very decided improvement. He was subsequently treated by Dr. Bruen with hypodermatic injections of bichloride of mercury.

Case III.—J. J., male, æt. thirty-seven, Italian laborer, admitted to Medical Ward 8, bed 9, December 24, 1887, complaining of vague pains in various parts of the body and constant headache. The initial lesion occurred five weeks prior to admission. Lesions of the tonsils and throat. About January 16, 1888, well-characterized macular eruption appeared over the whole body; enlargement of the superficial lymphatic glands. January 17th, hypodermatic treatment begun, and he received in all eight injections. On March 23d, the following note was made: "The patient better in every respect; the eruption has disappeared; the superficial lymphatics have undergone resolution; the patient free from pain and feels perfectly well. He has had at no time any stomatitis or diarrhœa." This patient received on one occasion two grains of calomel by hypodermatic injection. A superficial abscess occurred at the site of one of the injections.

Case IV.—C. McG., male, aged twenty-eight, Irish, blacksmith, admitted to Medical Ward 8, bed 10, January 27, 1888. The initial lesion occurred October 1, 1887. He suffered with severe pains in the head, arms, and body; considerable induration about the point of the chancre on the dorsal aspect of the penis in the sulcus. Inguinal lymphatics much enlarged, also the post-cervical and epitrochlear glands. A profuse papular eruption covered the whole body. The treatment by calomel, hypodermatically, commenced January 28th, and he had in all nine injections. During the course of the treatment an abscess formed at the side of the neck, and two or three small abscesses formed in the gluteal region at the site of the injection. There was no stomatitis or diarrhœa. Within two months of the beginning of the treatment the sore on the penis had healed, the glands had undergone resolution to a considerable extent, and the eruption had disappeared, with the exception of a few scaly papules in the region of the lips, the lower part of the abdomen, and the thighs. March 15th, the patient was still doing well.

Case V.—L. S., male, æt. twenty-five, roofer by occupation, American, admitted to Medical Ward 2, bed 18, February 25, 1888. He first observed the initial lesion some time during the autumn of 1887. There was phimosis, for which circumcision was performed. Secondary symptoms, sore throat, constant headache, enlargement of the superficial lymphatics, uniform papular rash over the body and legs. Treatment was commenced February 26th. In all six injections were given up to March 15th, when it was noted that the glands were undergoing resolution, that the rash had, to some extent, faded, that the headache had disappeared, and that his general condition was improving. There were no abscesses, no sore mouth, and no diarrhœa.

Case VI.—J. F., æt. twenty-five, Irish, admitted to Medical Ward 8, bed 24, October 20, 1887. The initial lesion occurred fifteen months before admission, and was followed by non-suppurating enlargement of the glands of the groin. He had suffered with iritis in both eyes, but not at the same time. Severe periosteal and articular pains. Treatment by hypodermatic injections of calomel was commenced in January, 1888. After the second injection the patient refused to continue the treatment on account of the pain attending it.

The following cases were treated in private practice:

Case VII.—X., male, æt. forty-five, a man of leisure, had the initial lesion in 1873. Intense and protracted secondary lesions affected the mucous membrane of the mouth and the cutaneous surface; prolonged mercurial treatment. A period of about five years passed without symptoms of any kind. In 1881 there appeared extensive, stubborn ulceration of the tongue, very little modified by treatment by mercurials and iodides, and local treatment with nitric acid. He came under my observation in 1882. There was deep serpiginous ulceration of the left border of the tongue, with extensive cicatrices of the right border; scaly eruption of the palms of both hands, not symmetrical, with deep, linear, fissured ulcers of the flexures; thick, scaly patches upon the soles and borders of both feet, with considerable thickening of the skin; a large, scaly patch on the left side of the scrotum. Decided improvement under alternating courses of iodide of potassium and protiodide of mercury, with frequent applications of nitrate of silver to the lingual ulcers. The latter in the course of a few months had healed, and since have only occasionally, and for short intervals, given trouble. The scaly patches have undergone occasional improvement, but never disappeared, notwithstanding the fact that the patient has been steadily under observation to this date, and for most of the time under treatment. Mercurial inunctions, although frequently proposed, have never been practised, owing to the patient's unwillingness to subject himself to the inconvenience. Treatment by hypodermatic injections commenced November 4, 1887, and was continued somewhat irregularly until the end of February, 1888, five injections in all having been administered. After the second injection, the scaly patches upon the hands, feet, and scrotum absolutely disappeared. On the ninth day after the first injection slight salivation was noted.

Case VIII.—F. H., male, æt. thirty-two, a travelling salesman, came under observation with the initial lesion in April, 1886. I had the opportunity of seeing the female from whom the disease was contracted, then suffering from intense secondary symptoms. F. H. developed in due course of time superficial ulcers of both tonsils, mucous patches, macular rash, and enlargement of the superficial lymphatics; none of these symptoms, however, being intense. The general health continued good. After a year of systematic treatment with protiodide of mercury, with occasional brief intermissions, the patient still presented a few reddish, scaly papules upon the forehead at the edge of the hair, upon the fingers and the legs; these lesions, however, not being symmetrical. In March, 1887, iodide of potassium was given in moderate doses, and continued until November, 1887, with the effect of modifying but not curing the cutaneous lesions.

Hypodermatic treatment commenced December 10, 1887. It was interrupted by the absence of the patient from the city until February 16, 1888, when the second injection was administered. The patient was unable to return until March 10th. He then stated that after the second injection a very decided improvement in his symptoms had occurred, and requested that the treatment should be regularly continued. From that day until the present time he has received four injections at intervals of a week, making six injections in all. The lesions have entirely disappeared.

Case IX.—Mrs. R., widow, æt. thirty-eight, was sent to me from the central part of Pennsylvania, by a medical friend, February 10, 1888. She had been ill three years with a teasing cough, attended by scanty expectoration, occasional night-sweats, but without loss of flesh. She had consulted a number of physicians without benefit. The appetite was fairly good; the temperature as taken in the mouth at 4 P.M. was normal. There was dulness over the right lung anteriorly in the mammary region, with abundant subcrepitant and crepitant râles heard in the infra-scapular area and extending down the anterior border of the lung. Percussion elsewhere yields good resonance, and especially is this noted in the supra-clavicular region on both sides; examination of the sputum showed no bacilli.

February 27. The signs not having changed and the patient having a normal evening temperature, the history was carefully investigated. There was no hereditary tendency to phthisis. The patient married twelve years ago, a man somewhat younger than herself, whose occupation compelled him to be much absent from home. Within a year the wife miscarried at the sixth month. Two years later a child was born apparently healthy. It developed snuffles when one month old and died at the age of four months of "marasmus." The husband complained from the time of marriage of frequent severe headache. The attacks of headache after a time became so violent that he was obliged to discontinue his occupation for periods of several days together. Later the headaches were followed by confusion. There is no history of any special condition of the eyes nor of paralysis until about three years before his death. At this time he was seized with unconsciousness and irregular palsies. This attack was not followed by recovery; on the contrary, his mental condition became progressively feeble, he lost the power of locomotion and died paralytic one year ago.

Mrs. R., his widow, informs me that shortly after her marriage she had sore throat which lasted for more than a year despite treatment, and that at that time she almost wholly lost her hair, which, however, afterward grew in; does not recall any eruption.

29th. Treatment by hypodermatic injections was

commenced and has been continued up to the present time, five injections having thus far been administered. The area of percussion dulness is much less extensive, the subcrepitant râles are not heard, and a few crepitant râles only can be elicited on forced inspiration after efforts of coughing. The diagnosis in this case is not, perhaps, positive, but there is warrant for the assumption that these symptoms and signs are due to gummatous infiltration of the lung.

CASE X.—Mrs. S., æt. fifty-six, has suffered for many years with intense paroxysmal headaches accompanied by disturbance of hearing and hallucinations, followed by deep stupor at intervals of from six weeks to three months. These attacks last from two or three to six or eight days. In the intervals there is a feeling of confusion and dull headache, easily excited by mental or physical effort General nutrition good. The eye grounds have been examined by the late Dr. Little and by Dr. William Thomson with negative results. The urine has never been albuminous. There is no cardiac disease. No history whatever is to be obtained in this case. The patient's husband presents no indications of having suffered from syphilis; there are three grown-up daughters all in good health. The oldest, however, has, to a well-marked degree, the physiognomy of hereditary syphilis with characteristic narrowing and notching of the upper central incisors. This deformity was so conspicuous that she had the teeth removed and replaced by artificial pivoted teeth. The other daughters show nothing characteristic. The symptoms of this patient never improved under mercurial treatment by the mouth or under iodide of potassium. On several occasions, mercurial inunctions have been followed by a cessation of the headaches for a period of some months, and a mitigation of the severity of the paroxysms upon their recurrence. On more than one occasion she has been ptyalized as a result of this treatment. Treatment by the hypodermatic injection of calomel was commenced November 20, 1887, and continued at intervals of, at first, a week and later two weeks until the present time. Eleven injections in all have been administered. From the time of the commencement of this treatment, the patient, although suffering from occasional dull headache and the old sense of confusion, has had no recurrence of her attacks.

CASE XI.—N. S., female, æt. seventeen, the third child of syphilitic parents; with the typical facies of hereditary syphilis, prominent frontal bosses, sunken nose, and notched teeth, developed, at the age of fifteen, interstitial keratitis with double iritis resulting in total blindness. She was successfully treated by Dr. Charles S. Turnbull, improvement gradually taking place under frequently repeated small doses of biniodide of mercury. Within a year there has appeared a copious, thickset, acneform eruption, most copious over the sides of the face, the shoulders, and the thighs. This eruption has the color of lean ham; is papular and occasionally pustular. The hypodermatic treatment was commenced March 2, 1888, and has been repeated at intervals of ten days, three injections in all having been administered up to the present time. Under this treatment the eruption has rapidly improved, a large proportion of the papules have entirely disappeared, and those which remain have lost their vivid copper-red color.

CASE XII.—B., æt. forty-one, was seen in consultation December 31, 1887, with Drs. C. M. Wilson and Murray Cheston. The details of the history were not known further than that he had been under the care of an ophthalmic surgeon for serious syphilitic eye trouble, which had improved under specific treatment. The patient had been disinclined to take care of himself, or to follow the directions given by his medical adviser. The day before he came under observation he had complained of unusually severe headache upon the left side, and had gradually lost power of the right arm and leg. When seen he was completely aphasic; the intelligence was clear. Two hypodermatic injections of calomel were administered, but in view of the gravity of the case and lack of experience in regard to this treatment, it was abandoned for mercurial inunctions, under which the patient rapidly regained his speech, and, to a certain extent, the use of the paralyzed side. The treatment is now being conducted by a female evangelist of the "faith-cure," under whose care the patient had been for some weeks prior to the attack in which I saw him.

Whole number of patients treated, twelve; injections, sixty-nine.

My thanks are due to Dr. Hutchinson, Resident Physician at the Philadelphia Hospital, for his interested pains taken in this clinical study, and to my colleagues, Drs. Bruen and Steinbach, for courtesies in regard to the observation of cases transferred, under the rules of the Hospital, to their wards.

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RECENT VIEWS REGARDING THE PATHOLOGY AND TREATMENT OF PERTUSSIS.[1]

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The present era is one of important and far-reaching change in medical opinion, more particularly as regards the essential nature of many of the most prevalent maladies. It is not at all surprising, therefore, to find recent views concerning pertussis differing materially from those which were accepted ten, or even five, years ago. With the advent of new ideas on pathology, new methods of treatment have naturally arisen. The purpose of this paper is to give a brief account of the more important views recently enunciated concerning the pathology and treatment of pertussis. The inquiry will also be pertinent, whether we have made any true progress in these directions, or whether we have to do merely with the rising tide of popular innovation.

In the first place, then, What is the nature of pertussis?

The drift of modern research runs almost exclusively in one direction, namely, that of regarding whooping-cough as a disease due to the invasion of microörganisms.

But while most modern observers are ready to admit the parasitic origin of the affection, considerable differences of opinion obtain regarding the particular kind of organism supposed to be specific, as well as the precise point of its location within the body.

As long ago as 1870, Letzerich[2] described a microorganism alleged to be present in the sputum, and on the mucous membrane of the respiratory organs of patients having pertussis. His observations were soon confirmed by some writers, but others disputed his claims. The most recent researches have resulted in showing that the organisms of Letzerich are harmless saprophytes, and not the pathogenic microbes of pertussis.

The organism discovered by Tschamer[1] is identical with the fungus known as *capnodium citri*, which is found on orange-peel and apples. It is certainly not the specific microbe of pertussis.

Deichler,[2] of Frankfort, has also discovered an organism in this disease. And, strangely enough, it is not a minute plant, but an animal belonging to the protozoa. This author makes the rather guarded statement that, while the animalcule in question occurs only in pertussis, and evidently has some pathogenic significance, it may not be the sole exciting cause of the disease. It will strike the reader that a more modest microörganism has not of late years been discovered on German soil, a circumstance which probably accounts for the contempt in which it appears to be held by those German writers who take the trouble to mention it at all.

Henke[3] has described small round cells, which he found in the sputum, and which he supposed to be peculiar to pertussis. From his description, however, it is clear that they were merely lymph corpuscles, showing in their interior the well-known phenomenon of molecular movement.

Poulet's[4] *monas termo* and *bacterium termo* have nothing to do with pertussis, and the Frenchman's claims in an opposite direction cannot be upheld.

In 1883, Burger[5] found a small rod-shaped organism in the sputum of patients having pertussis. He regards it as the exciting cause of the disease. But the methods employed by Burger are not above criticism, and Koch has refused to accept his arguments as convincing.[6] Cultures and inoculation experiments were not made by Burger. From his description it is apparent that he did not see the bacillus of Afanasieff, presently to be considered.

All these observations (as well as a number of others that need not be mentioned here) were undeniably prompted by the *à priori* consideration that pertussis ought to be due to the presence of a microorganism. Indeed, not a few authors have taken the ground that while we might not yet know all about the presumed microbe, treatment, in order to be rational and effectual, must be chiefly of the antiparasitic kind.

So long as ten years ago Hagenbach[7] maintained that whooping-cough was a catarrhal affection of the mucous membrane of the respiratory tract, associated with the invasion of fungi. According to this author, the characteristic paroxysms of cough are due to reflex action, starting from irritation of the terminal filaments of the superior laryngeal nerve.

[1] Read before the New York Academy of Medicine, Section on Pædiatrics, April 25, 1888.

[2] Virchow's Archiv, vol. xlix.

[1] Deutsche med. Wochenschrift, April 7, 1887, and Jahrbuch für Kinderheilkunde, vol. x.

[2] Deutsche medizinal Zeitung, No. 37, 1886.

[3] Deutsches Archiv für klin. Med., vol. xii. p. 630.

[4] Comptes Rendus de l'Acad. des Sciences.

[5] Berliner klin. Wochenschrift, No. 1, 1883.

[6] Fortschritte der Medicin., vol. i. p. 108.

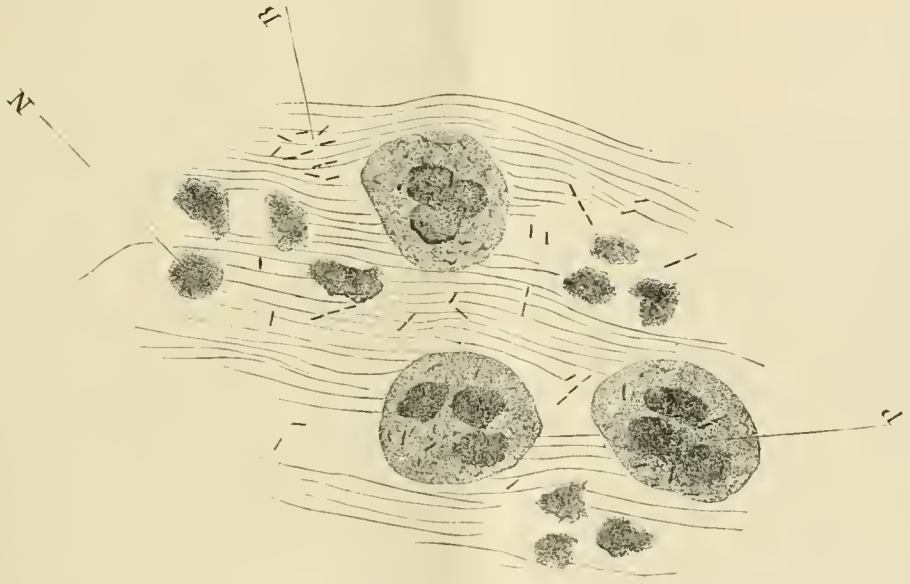
[7] Gerhardt's Handbuch der Kinderkrankheiten, vol. ii. p. 551.

Widerhofer[1] describes whooping-cough as a bronchomycosis.

Baginsky[2] places the disease among the constitutional infectious maladies. But by calling it an infectious catarrh of the mucous membrane of the respiratory passages, he admits that it may just as well be classed with the "local contagious" maladies.

Michael,[3] of Hamburg, following the suggestions of Hack, Schadewald, Sommerbrodt, Wille, and others, asserts that the disease is due to reflex disturbances, caused by the presence of microbes in the mucous membrane of the nose. This has led to the nasal treatment of the malady, a method which has found many followers.

FIG. 1.



Sputum from a case of pertussis. *P*, pus corpuscle containing the specific bacilli; *N*, nuclei from broken-down corpuscles; *B*, group of bacilli. (The ordinary atmospheric bacteria, often found in the sputum, have been omitted from this drawing.)

The discussion on whooping-cough, which occurred last year at the German Congress of Internal Medicine,[4] was an interesting debate on a very debatable subject. Vogel, Hagenbach, Michael, Heubner, Prior, Schliep, Sonnenberger, Binz, and Cohen, were the principal speakers. As already pointed out, the drift of opinion was in the direction of assuming the parasitic origin of the disease. No noteworthy discovery was announced, however, and as for treatment, there were about as many different opinions as there were participants in the discussion.

We come finally to the most recent pathological announcement, that of Afanasieff, which appeared in four successive numbers of the *St. Petersburger medicinische Wochenschrift*, in October, 1887. Borrowing the language of the *Lancet* (modified in a few particulars), this author

"has succeeded in finding and cultivating what he believes to be the true bacillus of whooping-cough. This microbe differs distinctly from all other bacteria which have been described (Fig. 1). It is somewhat like Friedländer's pneumonia bacillus, but is shorter and thinner than the latter; besides, in gelatine it does not form nail-shaped cultures, those which are produced having no hemispherical head. Its potato cultures, too, are quite different from those obtained from Friedländer's bacillus. Afanasieff's bacillus exhibits a remarkable degree of vitality, for jelly cultures that have become dry and have been kept for four months, appearing under the microscope to be more or less destroyed, are still capable of producing fresh cultures when fresh media are inoculated from the dried mass. Dr. Afanasieff's researches were chiefly made from the sputum of some of his own children, who were affected with whooping-cough. The mouth was well washed out with a permanganate of potash solution, and the mucus coughed up after the next paroxysm or two examined. In this mucus, after staining with methyl-violet, and occasionally in the pus-corpuscles contained in it, the bacilli could be seen with a magnifying power of from 700 to 1000 (Zeiss's eye-piece 3 or 4, $\frac{1}{12}$ oil immersion objective) as short rods (Figs. 2 and 3), sometime single, sometime in twos, or even in short chains running in the direction of the mucus, sometimes again in small clusters. Their length was from 0.6μ to 2.2μ. Other bacteria were also found. But they were numerically insignificant, as compared with the bacilli under consideration.

Pure cultures were easily made on agar-agar, meat-peptone jelly, potato, etc. Dogs and rabbits were

[1] Allgemeine Wiener med. Zeitung, August 10 1886.
[2] Lehrbuch der Kinderkrankheiten, 1883.
[3] Deutsche med. Wochenschrift, No. 5. 1886.
[4] Deutsche medizinal Zeitung, May 2, 1887.

inoculated with a fluid culture mixed with chloride of sodium solution, some by means of injections into the trachea, others by direct injections into the lungs. All the animals were seriously affected, and many of them died. The symptoms were some-

FIG. 2.

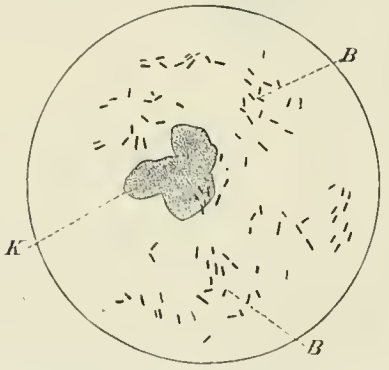
Pure culture of the bacillus pertussis on agar-agar, twenty-three days old. (After Afanasieff.)

FIG. 3.

Pure culture of the bacillus pertussis on potato eleven days old. (After Afanasieff.)

what similar to those of whooping-cough, including cough, dyspnœa, and redness of the eyes. Many of the cases were complicated by broncho-pneumonia. On examining the bodies of those animals which died, the mucous membrane of the air-passages was found much reddened, and coated with a tenacious clear mucus, in which, as well as in the pneumonic patches in the lungs, the bacilli were found (Fig. 4). Similar appearances and the same bacilli were observed in the bodies of children who had died from whooping-cough."

FIG. 4.



Specimen taken from a patch of broncho-pneumonia artificially induced in a rabbit. *K*, pus corpuscle; *B*, bacilli pertussis. (After Afanasieff.)

In my opinion the bacteriological researches of this Russian observer are far more important and convincing than any hitherto undertaken.[1]

[1] If I may be permitted a personal remark in this place, it is that I know the author to be a most careful, painstaking, and conscientious observer. Twelve years ago while we were studying together at Strasburg, under the supervision of Waldeyer and v. Recklinghausen, I had ample opportunities to admire the excellence of all his laboratory work. Afanasieff is the author of numerous contributions to histology and pathology, that have always been favorably received by recognized authorities.

The discovery of Afanasieff has been confirmed by a Russian observer, Semchenko. His papers were published in the *Vrach*, and the *Lancet* of January 7, 1888, mentions his views as follows:

"Dr. Semchenko, having investigated the whooping-cough bacteria described by Professor Afanasieff, has satisfied himself that they are the true specific cause of the affection. They appear in the sputum on the fourth day of the disease, if not still earlier. They go on developing in the tissues of the body, and simultaneously with their multiplication the severity of the disease increases. The bacteria disappear before the paroxysms of whooping-cough have ceased, generally when these have been reduced to from two to four in the twenty-four hours. When complications, such as catarrhal pneumonia, arise, they are accompanied by a great increase in the number of whooping-cough bacilli found in the sputum, the pneumonia developed under these circumstances having, according to Dr. Semchenko, several points of difference from ordinary attacks of catarrhal pneumonia. The examination of the sputum of whooping cough patients is apparently useful, not only for diagnostic purposes, but also as a guide to the prognosis of the course of the disease."

My own experience with the bacillus described by Afanasieff permits me to state that it is probably always present in pertussis. In the few cases in which I failed to find it, the method of obtaining the sputum was very likely at fault. I am unable, however, to confirm the assertion of Afanasieff, that the small pellet of mucus which is coughed up at the end of a paroxysm contains the pertussis bacilli in almost pure culture. I have invariably found other varieties of bacteria (such as commonly occur in the sputum of bronchitis) along with those of whooping-cough.

Moreover, it has not been my fortune to be able to demonstrate the bacillus pertussis, except in those cases where the clinical features of the disease were already so well marked, that a microscopical confirmation was not needed. Hence, I cannot agree with Semchenko in ascribing any great diagnostic significance to the discovery of these bacilli in a given case.

I had occasion to examine the sputum from a few cases of suspicious cough, that later developed into characteristic pertussis, but in none of them could I find the bacillus of Afanasieff, during that early stage.

Again, in two cases that were on the high-road to recovery I still found as many bacilli as during the height of the disease. In this respect also, my own observations are at variance with those reported by Semchenko.

I, nevertheless, have no doubt concerning the etiological significance of Afanasieff's discovery. But what practical benefit will result therefrom to the practitioner of medicine remains to be seen.

We certainly require no bacillus for diagnostic purposes. And in cases which are as yet doubtful, the bacillus is not found. At least such has been my rather limited experience.

Before closing this short account of recent pathological views on whooping-cough, mention should be made of the observations of v. Herff,[1] which are not without interest. This author, while suffering from pertussis, studied the appearance of his own larynx. According to him, there exists, during the entire course of the malady, a moderate amount of inflammation of the mucous membrane of the respiratory organs, from the posterior nares down to the bifurcation of the trachea. At the outset of the disease, this inflammation is but a mild catarrhal one. It gradually increases in severity, and again abates during the period of defervescence. In his own case, the inflammatory action was quite intense at the arytenoid cartilages and those of Wrisberg and Santorini. But the posterior wall of the larynx between the vocal cords, and the under surface of the epiglottis, were most severely affected. The vocal cords themselves appeared intact.

During the paroxysms, v. Herff claims to have seen a small pellet of mucus on the posterior aspect of the larynx, and on a level with the vocal cords. On removing this pellet the paroxysm came to an end at once. Irritation of this part of the larynx induced an attack. But a paroxysm was not produced by irritating other parts of the larynx. The author maintains, therefore, that this inflammatory action in the interarytenoid space is responsible for the spasmodic attacks characterizing pertussis. About the probable lodgement of microbes at this point he is strangely silent for a modern observer.

On examining the modern therapy of pertussis, we shall find that, in addition to the countless old remedies, almost every new drug has been tried. That the curability of an affection varies inversely in proportion to the number of remedies employed in its treatment is a trite experience. Judged by this rule, whooping-cough must still be regarded as a very intractable malady.

For obvious reasons, no attempt will be made, in this place, even to mention all the drugs that have been tried and recommended in pertussis, let alone discuss their merits.

Whatever is regarded by physicians as the essential something of the disease, that they have proceeded to attack. Those who look upon the infectious element as the chief factor of the disorder, naturally chose, and still choose other means of treatment than those who consider the respiratory catarrh as most important, or than those who hold that the morbidly heightened nervous irritability is chiefly responsible for the trouble. Those, finally, who believe in the parasitic origin of pertussis have recourse to one or another of the various antiseptics or parasiticides. Mention has already been made of the nasalists, who direct all their efforts against the offending mucous membrane of the nose. They employ for this purpose sprays and insufflations of various antiseptics and sedatives. This treatment is said to prove very successful. In an editorial notice touching the nasal treatment of pertussis, the *Lancet* of January 15, 1887, says, "It is doubtful whether the theory of this fashionable method is correct; but, supposing it should be, it is equally dubious whether the good that results may not be from the mere treatment of catarrh as such, apart from its supposed cause." I fully concur in this view of the alleged success attending this method of treatment in whooping-cough.

It was at first proposed to place the various remedies in groups, a plan which has been followed by Chéron.[1] But the groups soon grew to such formidable proportions that the limits of this paper would have been unnecessarily extended, had that idea been carried out. I have preferred, for this reason, to examine only a few methods of treatment, and to present for consideration my personal views as to what constitutes rational therapy in the present state of our knowledge.

To begin with, whether we accept the parasitic doctrine of the disease or not, I believe that the policy of absolute non-interference, still persistently advocated in some quarters, should be emphatically condemned. If we cannot attack the affection at its roots, something can surely be done to mitigate its severity and to reduce the frequency of complications. There is probably not one among us who has not witnessed the sad plight that neglected cases will sometimes fall into. I would ask whether the large mortality still ascribed to pertussis is not, in a great measure, due to irrational medication rather than, as some maintain, to over-treatment?

It goes without saying that proper alimentation and the best hygienic conditions attainable, will always contribute toward the success of any plan of treatment. How difficult of accomplishment these measures are among the poor and shiftless, is only too well known. But, even among the better classes, the necessity of pure light, of fresh air, and of proper food, furnishes a text for almost daily preaching.

I am a firm believer also, in the propriety, or rather the necessity, of employing every possible means of protection for the unaffected members of a family. The time is surely past when the profession can countenance the opposite custom of encouraging the contagious diseases of childhood to affect as many members of one family at a time as possible. The mother may be anxious "to be done" with a

[1] Deutsches Archiv f. klin. Medizin, vol. xxxix.

[1] L'Union Médicale, October 18 and 20, 1887.

particular disease for her offspring. But I conceive it to be our duty to oppose energetically all such dangerous nonsense, even at the risk of incurring the wrath of some wiseacre guardian of the nursery.

As to particular drugs in the management of pertussis, I believe that individual preferences in respect are often the result of accidental causes. We certainly possess no specific for pertussis. It is to be remembered that there are seasonal and other variations in the intensity of the disease. If we accept the bacterial origin of pertussis, this varying degree of severity would depend upon the degree of infection. Some such explanation certainly appears necessary, in view of the fact that equally honest observers do not obtain equally good results from the same drugs.

Turning now to medicines, we find that narcotics and sedatives are as largely employed as ever. Many new combinations have indeed been put forward, but it does not appear that special virtues belong to any particular drug.

Vetlesen[1] has warmly advocated the use of belladonna combined with cannabis indica. He tells us that in 116 cases he obtained excellent results 83 times. In 30 patients the disease lasted only from 8 to 14 days. I have no personal experience to record with this combination, but on general principles I am hopelessly sceptical concerning such surprising results. I may say, in this connection, that I have employed belladonna unstintingly, a few times unwillingly, to the danger-point. Yet, I have never seen it shorten the duration of the disease, although the severity of the spasmodic cough was favorably influenced.

The bromides and chloral have found favor with many writers. For myself I have come to regard them as indispensable in the severer cases. I have fearlessly employed them alone or in combination.

The action of cocaine, locally as well as internally, is extolled by numerous observers. Prior recommends as highly efficacious, solutions having a strength up to 30 per cent., to be applied with a brush, to the pharynx and larynx. I have feared to employ the stronger solutions of cocaine, and the weaker ones (up to 4 per cent) have not given me much satisfaction.

By several writers the various salts of quinine (Binz, for example, favoring large doses of the tannate) have been strongly urged for internal as well as local use. My own experience with quinine is so slight that I am not justified in commenting on its utility.

Carbolic acid, iodoform, corrosive sublimate, resorcin, the salicylates, pure benzol, eucalyptus, thymol, boric acid, in fact every known antiseptic and parasiticide, has found its champion. Why any particular member of this group should be so much more beneficial than all the others, I am unable to comprehend. The use of antiseptic sprays, provided always that the patients are old enough to tolerate the necessary manipulations, would appear to be a rational means of procedure. I am bound to confess, however, that in my hands they have yielded less flattering results than I anticipated, after reading the glowing accounts of the successes of others.

I would put these questions before you: If pertussis is due to the irritation of toxic substances (ptomaines) produced by specific microbes, are we really fulfilling the indications of the disease, by incorporating other poisons into the system, impotent to kill the bacteria, but yet powerful enough to harm the young patients?

In other words, is not this much-vaunted specific medication of pertussis an illusion and a snare?

Is it not, after all, more rational so to fortify the system, that in what has been termed the "cellulo-microbian warfare," the cells may be the victors and not the vanquished?

Is it not safer and easier to assist the cells to fight their battle, than to attempt to kill the rapidly multiplying bacteria that are already lodged within them?

Although I have deprecated the habit of recommending particular drugs on the strength of gratifying personal experience, I cannot refrain from alluding to the use of antipyrin in pertussis. Dr. Sonnenberger,[1] of Worms, was the first to call attention to this new drug in the treatment of whooping-cough. He claimed such surprisingly good results from its employment that my sceptical faculty was immediately fanned into activity. Nevertheless, so far as my own limited experience goes, I must own that antipyrin has with me a better record than any other one drug. I can claim no cures from antipyrin. But what the drug has appeared to me to favor, was an easy course of the disease to final recovery, a mitigation of the paroxysms, especially at night, possibly a reduction in their number, and certainly a freedom from complications. This is higher praise than I can conscientiously bestow upon any other method of treatment. But I am far from claiming as much as Sonnenberger, for antipyrin, that author asserting it to be distinctly curative. As to the method of its employment, I have followed the directions of Sonnenberger, who gives one-seventh of a grain to very young children, and gradually increases the dose according to the age of the child. To adults he gives fifteen grains. The medicine is administered three times daily, and sometimes once during the night. Children take it readily when dissolved in a little water and raspberry syrup. The remedy should be continued throughout the attack.

[1] Norsk Mag. f. Laegevidenskaben, No. 6, 1886.

[1] Deutsche med. Wochenschrift, April 7, 1887.

I have said nothing about fumigation with sulphurous acid, a method urged for adoption by Mohn,[1] because I have not tried it. Antiseptic inhalations and others, in the pneumatic cabinet, as particularly advocated by a Dutch physician,[2] may also be mentioned here. I have not employed this method, and doubt whether it will find favor with the profession.

When a French physician asserts in all seriousness, that he cures whooping-cough by cauterizing the ulcerations on the under surface of the tongue,[3] we can only assure him that French pertussis and American pertussis are distinct and different maladies. As a summary allow me to submit the following conclusions:

1. There is constantly associated with whooping-cough a special microörganism, discovered by Afanasieff.

2. This microbe is a small bacillus, having properties that distinguish it from all other known bacteria.

3. The "bacillus pertussis" (*bacillus tussis convulsivæ Afanasieff*) can be readily demonstrated in the sputum of patients having the disease.

4. While its etiological significance appears established, it does not possess much diagnostic importance, since it is found only after the clinical features of the disease are already well marked.

5. The treatment of pertussis has not yet been materially advanced by this discovery.

6. Antiseptics locally applied do not appear to shorten the duration of the disease.

7. Hygiene and judicious alimentation are, in the present state of our knowledge, of, at least, equal importance with medicinal treatment.

8. Antipyrin and the bromides are reliable symptomatic drugs, and are devoid of danger.

9. A specific has not yet been found.

10. Abortive forms of pertussis may occur, but no plan of treatment now known can claim to have abortive efficacy.

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CONSIDERATIONS ON THE PATHOLOGY OF THE CÆCUM AND APPENDIX.[4]

BY JOSEPH RANSOHOFF, M.D., F.R.C.S.,
OF CINCINNATI.

WHEN Dupuytren,[5] in 1826, had first called attention to the relation of pericæcal abscesses to those of the right iliac fossa, observations in this field were rapidly instituted by continental writers. In 1830 Goldbeck,[1] of Heidelberg, first suggested the term perityphlitis for all the inflammatory conditions of this region. In 1834 a step was taken in the right direction when Copeland[2] first differentiated lesions of the cæcum from those of the appendix, and another by Albers,[3] who first described that special form since known as "typhlitis stercoralis." In 1836 and 1838 John Burne[4] contributed, in two excellent articles, further knowledge concerning lesions of the cæcum and appendix. Within recent years particularly numerous articles on the diseases of this region have appeared, and as a result their proper nomenclature is being gradually determined.

There are most excellent reasons, anatomical and clinical, for separating inflammations here present, into those of the cæcum and those of the appendix; each to be subdivided into those of the part itself and those of its peritoneal investment. There is, it appears, a rational basis for the use of the terms typhlitis to indicate inflammation of the cæcum, perityphlitis to indicate a like condition of its serous coat. Appendicitis, following in the path of With[5] and Fitz,[6] should be reserved for inflammation of the appendix, and peri-appendicitis or appendicular peritonitis for that of its peritoneum.

Of the varieties of cæcal and appendicular inflammation, those of the appendix are of far more frequent occurrence in grave cases than those of the cæcum proper.

Yet it is equally certain that typhlitis is far from uncommon, although mortuary records fail to show it. In the investigations of the anatomy of the part, I was struck by the frequency with which evidence of chronic catarrh, in the form of patches of indolent venous coagulation, pigment spots, and superficial abrasions were encountered in the cæcum. In all such instances the scybalous contents were covered with a layer of opaque mucus. This catarrhal condition is by no means confined to those who are habitually constipated, but is often encountered in the young, in whom the dependent position of the cæcum makes it a favorite seat for the retention of indigestible food. From this condition there is only a step, though a long one, to the typhlitis stercoralis of German writers, which, though doubtless of frequent occurrence, generally ends in recovery, and is, therefore, not anatomically demonstrated.

Given, however, a continuance of the cause, which, in contradistinction to that of peri-appendicitis, is rarely a foreign body, and the erosion be-

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[1] Revue des Sciences médicales, and London Medical Record, February 15, 1887.

[2] Arntzenius, in Weekbl. von het Nederl., etc., No. 67, 1887. See Therapeutic Gazette, October 15, 1887.

[3] Gazette des hôpitaux, and Revue de Laryngol.

[4] An extract from a paper read before the Surgical Section of the American Medical Association, May 9, 1888.

[5] Leçons Orale, v. iii. p. 12.

[1] Ueber eigenthümliche, entzündliche Geschwülste in der rechten Hüftbeingegend, 1839.

[2] Dictionary, vol. i. p. 277, quoted by Fitz.

[3] Beobacht. auf dem Gebiete d. Pathologie.

[4] Medico-Chirurg. Trans., vol. xx. p. 201, and vol. xxii. p. 33.

[5] London Med. Record, 1880, p. 213, quoted.

[6] Amer. Journ. of Med. Sci., vol. 92, p. 321.

comes an ulcer. If the pressure effect of a hard fecal mass be the cause, the ulcer would probably be seated in the posterior wall of the cæcum, where, therefore, the localized peritonitis or intra-peritoneal abscess would be most likely to result. That such peritonitis may develop in any portion of the cæcal superficies is shown by the multiplicity of directions taken by perityphlitic abscesses in different cases. Whether the abscess presents itself above or below Poupart's ligament, the superficial position of the cæcum generally causes it to appear early. The only exception is that in which the pus travels toward the loins, under which circumstances the peri-cæcal trouble is probably secondary to a peri-renal, spinal, or iliac abscess.

The perforations which occur in the cæcum are not often produced by foreign bodies, although a number of such cases have been recorded. They are not infrequently produced by tuberculosis, although here, as in the case of foreign bodies, the appendix is preferably the part affected. The ulceration may, however, exist in the cæcum alone, the appendix remaining unaffected.

It is evident that the views entertained from time to time concerning the relative importance pathologically of the cæcum and appendix have vibrated like a pendulum. Dupuytren and his followers look on the cæcum as the part primarily at fault. Burne located disease in the same part, and Habershon[1] followed in the same direction. In the more recent contribution of Kraussold[2] and Berner, the appendix has been given greater prominence than ever before; whereas formerly, as Kraussold puts it, the appendix was treated in a stepmotherly way, there is a danger now that the cæcum will share this fate. While in the acuter and more fatal forms of perforative inflammations of this region the appendix doubtless plays the more important *rôle*; of twenty-five cases recently collected by me,[3] only one being of the cæcum, it is unreasonable to ascribe every perforation to it from clinical evidence alone. Thus so admirable an observer as Fenwick[4] mentions a case in which an abscess of the thigh was opened and discharged feces. In another instance an abscess terminated in a chronic vaginal fistula. Since both cases recovered, what evidence is there that in either the appendix was principally at fault? Fenwick, with others, rightly claims that the occlusion of the orifice of the appendix is a common cause of perforation. How can we logically, in such a case, account for the continuance of a copiously discharging fecal fistula? It appears to me much more probable that cases of this nature are primarily of cæcal origin.

[1] Guy's Hosp. Reports, vol. xi.
[2] Volkmann's klin. Saml., 191.
[3] Case of J. J. Reed, Med. Record, 1886, i. p. 401.
[4] Loc. cit.

On the other hand, the position of the appendix, the narrowness and tortuousness of its canal, the presence of a valve, the tendency of fecal or foreign matter to be retained in it, and the readiness with which it is displaced, all serve to make the appendix the principal seat of grave pericæcal inflammations. It is not remarkable, therefore, that autopsies will often reveal pathological conditions of the appendix where death has resulted from other causes. Züngel, Toft, and Kraussold have called particular attention to this fact. The latter writer even claimed that between the ages of twenty and seventy every third body will show traces of disease of the appendix, and that particularly in tubercular subjects it is often converted into a tubercular ulcer.

In over sixty examinations recently made, I found reasons for believing that in this section of the country, at least, the proportions quoted are entirely too large. In only eight cases were there either abnormal adhesions, unusually hard fecal masses, fibrous occlusions, or cicatrices on the surface. In only one instance was a foreign body, the stem of a raisin, encountered there. The discrepancy between these observations and those of the authors alluded to may be accounted for by the greater indulgence in animal diet by our people.[1] Speck calls attention to the greater frequency of the diseases of this region in Siberia, where the food, which is mostly vegetable, contains a large amount of indigestible residue.

The history of appendicitis is, for the most part, like that of inflammation in other narrow mucous canals with their catarrhal, ulcerative, and cicatricial phases. Recurring like typhlitis, and usually occurring like it about the period of adolescence, appendicitis is doubtless in many cases but the extension of disease from the cæcum. The catarrhal thickenings of Gerlach's valve or permanent stenosis of the appendicular orifice may cause the retention of excrement or mucus, either of which may form the nucleus of a concrement. This, or a foreign body, has been shown by Matterstock,[2] Fenwick, and Fitz, to be the cause of perforation in three-fifths of all cases. In other instances the appendix degenerates into a retention-cyst. Whatever the condition of the appendix, if at all grave, the peritoneum is sooner or later implicated. The favorable position of the appendix for forming adhesions and localizing abscesses without doubt often prevents a general peritonitis. On the other hand, the rupture of such adhesions or residuary abscesses may fatally infect the general peritoneum. Not infrequently, where there is no foreign body, the appendix degenerates into a firm fibrous cord, buried in adhesions and often difficult to find. These are the cases in which

[1] Quoted by Whittaker, Pepper's System of Medicine, vol. ii. p. 816.
[2] Gerh. Handle d. Kinderks. Treves, Brit. Med. Journ.

the progress of the appendicitis is made manifest from time to time by clinical phenomena, and in which the appendix, as the seat of recurring disease and a constant threat to the individual, may, as was recently done, be justifiably excised.

In a very fair proportion of cases (seven out of twenty-five) no foreign body or fecal mass is found, nor can the rupture of a cyst or tubercular ulceration account for the perforative peritonitis. In such instances the distal inch or two of the appendix is often found gangrenous, either adherent to the appendicular base or as a slough free in a pelvic abscess. This condition, it appears to me, is brought about by the displacement of the appendix and consequent torsion of its vessels; since the distal one-half inch or inch has no blood supply independent of the base, torsion of the latter would primarily involve the tip. A number of facts support this view. In the first instance, the appendix is not a pelvic organ under ordinary conditions. In perforative appendicitis of rapid development the abscess is, at least, often intrapelvic. In the second place the exciting cause of perforating appendicitis is, in one-fifth of the cases, a violence, such as might result from blows on the abdomen, excessive exercise, lifting, or vomiting. In the third place the gangrene is usually developed beyond the point of perforation. The latter is usually within one or two inches of the cæcal end; the gangrene, however, involves the tip. The subsequent pathological history of perforative appendicitis is outlined by rapidity of the effusion, and the facility or want of facility with which adhesions are formed. In many instances the contents of the appendix are thrown into the general peritoneal cavity and death ensues, with the rapidity and certainty pertaining to intestinal rupture from other causes and before adhesions form. In many cases, however, gradual drainage prepares the way for a limitation of the resulting abscess between the mesentery and mesenteriolum, and the small intestine within, and the cæcum without the omentum in front and behind all the reflections of the peritoneum over the psoas and eventually over the iliac fascia. Is it not possible, therefore, that except in foudroyante cases the danger of general peritonitis is somewhat overestimated.

When an abscess forms, what is more probable than its more or less rapid course toward the surface, above or below Poupart's ligament, toward the hypogastrium, or, as I have recently seen it, guided by an omental hernia toward the scrotum? Or that in other instances burrowing through the iliac fascia it should tend toward the loin; or opening into some hollow viscus, like the cæcum, rectum, or vagina, eventually to be recovered from?

It is beyond the scope of this paper to discuss the diagnosis and treatment of the conditions considered. But I may be permitted to append the following aphorisms. "Place not your faith in exploratory punctures; operate early and by lateral laparotomy when the symptoms are of the gravest, and a tumor is not forthcoming; reserving the incision parallel to Poupart's ligament for abscesses that are palpable."

HOSPITAL NOTES.

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SURGICAL SERVICE OF W. B. PLATT, M.D., F.R.C.S.

FIBRO-ADENO-ENCHONDROMA OF THE NASO-PHARYNX; LONGITUDINAL DIVISION OF THE SOFT PALATE; REMOVAL OF THE TUMOR; PRIMARY UNION.

M. S., colored, aged forty-four years, widow, admitted Feb. 23, 1887. Patient has had a sore throat for a year, with difficulty of breathing through the nose. Upon one occasion, at night, she expectorated a mouthful of blood, some coming from the nose at the same time, no other hemorrhage; suffers with almost constant pain through the temples. This has been worse the last month. Menses regular; anorexia; insomnia; constipation. No history or evidence of syphilis. Patient is a thin, light-colored negress; voice weak; articulation indistinct. There is an oval, movable, smooth, subcutaneous lump, the size of a pigeon's-egg, just below the lobe of the left ear. This is said to have been there eight years. With widely opened mouth, the soft palate was seen to be very tense, and thrust downward so as nearly to touch the depressed tongue; uvula pushed far to the right; the velum glided to the right in the first act of swallowing. With the finger a slightly uneven, rounded, very hard, immovable body, apparently about an inch and a half in diameter, was felt arising from the right side of the naso-pharynx. The finger could not be pushed up behind the soft palate for further examination, nor was a rhinoscopic view possible.

Operation.—The patient being etherized, and the mouth held open by a dilating screw gag, the velum was incised in what was, at the time, the median line, although the line of the septum had been carried far to the right by the pressure of the growth. The incision lay over the most prominent part of the growth, and the velum was, previous to this, tightly stretched over it. The cut extended from the hard palate entirely through the soft palate. Owing to the projecting African jaws, the distance from the mouth to the posterior pharyngeal wall was much greater than is usual in Caucasians, and rendered the operation more difficult. Various previous patient attempts under ether to pass a wire around the growth through the nostril had failed. Neither was it possible to encircle it by passing the snare upward from the pharynx before dividing the velum. The palate on each side immediately retracted, leaving a V-shaped gap, through which the tumor projected. A galvano-cautery wire was then passed around the growth and tightened. The current was not strong enough to heat the wire, and a steel wire of a Jarvis's snare was, after some difficulty, placed in position. The tumor was nearly sessile, and extended downward and backward from the margin of the left Eustachian tube, as near as could be determined. The

wire was slowly tightened; about twenty minutes being occupied in the process. A moderate, but steady, flow of blood took place from the point of attachment of the tumor, which was finally controlled by sponges saturated with a saturated solution of ferric alum. The incision in the palate was now brought together by five silver sutures. The wound united by first intention. The sutures were removed in from five to nine days; the only unpleasant symptom was some pain in the region of the left Eustachian tube, and also a slight toothache, due to prolonged pressure of the gag. At the end of four weeks the patient could speak with nearly normal articulation, and swallow without trouble. For three or four weeks there was considerable induration at the former site of the tumor. This gradually disappeared.

The growth measured nearly an inch and a half in its greatest diameter, and an inch across the divided pedicle. A microscopic examination of it at the Johns Hopkins Pathological Laboratory, which was kindly made by Professor Welch, showed the tumor to be a fibro-adenoma, containing occasional cartilage cells.

Remarks.—The choice of an operation for the removal of a naso-pharyngeal growth depends upon its size, location, and character. When there is no reason to believe the tumor to be malignant, and it is possible to surround it by a snare, this should always be attempted through the nares, or, if the nostrils be entirely obstructed, upward through the pharynx around the growth. When these two procedures are not practicable, the entire velum may be divided longitudinally, as in this case, according to the recommendation of Manne; or if the growth be smaller, by a large button-hole, as proposed by Maisonneuve. If the growth be situated still further forward, Nélaton advises trephining the hard palate in addition. Huguier, and others after him, used a transverse incision in the soft palate, to secure better union, and in order to interfere less with the function of the palate. Such interference would probably, as a matter of fact, be greater from the tearing of the tissues in the transverse operation than from the clean longitudinal cut. The operations mentioned are but a fraction of the "preliminary operations" which may be necessary before proceeding with the removal of the growth itself. They are, however, the principal palatine preliminary operations; the others, the maxillary, the osteoplastic, and nasal operations, are intended for new growths, or for such as from their location or size cannot be reached through the divided palate. The danger in these operations is hemorrhage, and it is sometimes necessary to perform a preliminary tracheotomy, inserting Trendelenburg's canula, or else filling the larynx with sponges. When hemorrhage does take place, it is to be controlled by pressure, hot water, artery forceps, or where none of these is practicable, by styptics, preferrably ferric alum (saturated solution) or ferric persulphate. It is usually recommended to leave the naso-pharynx stuffed with sponges after operation, until the danger of a recurrent hemorrhage is past. Nothing of the kind was done in this case. The bleeding was once thoroughly stopped, and the pharynx simply washed out several times daily by thorough gargling. The patient was shown at the Clinical Society of Baltimore eight weeks after the operation. When seen again by me, six months later, there was no return of the growth.

MEDICAL PROGRESS.

A Successful Splenectomy.—In the *Annali Clinici dell' Ospedale degl' Incurabili in Napoli* for May and June, 1887, Prof. Agostino Casini has recorded a case in which he successfully excised a "wandering" and hypertrophied spleen. The patient was a woman, aged twenty-two, who for four years had suffered from frequent attacks of malarial fever, sometimes accompanied by jaundice. Three years before she came under the care of Dr. Casini she became conscious of uneasy dragging sensations in the abdomen, and noticed a tumor in that region which steadily increased in size, whilst her general health became gradually worse. On examination the belly was seen to be enlarged, especially on the left side. A smooth, rounded, rather hard swelling was felt occupying the forepart of the cavity; it extended upward nearly to the margin of the ribs, downward to the plevis, and laterally to a line passing downward from the anterior axillary border. The tumor was freely movable, and was not adherent to the abominal parietes. It could be rotated so that its upper edge was directed forward perpendicularly to the wall of the belly, the anterior surface thus becoming the inferior, and the posterior the upper. On the rounded margin a notch could be distinctly felt. The mass could be moved upward and to the left, so as to be almost covered by the ribs; displacement toward the right, on the other hand, caused a feeling of dragging and stretching on the left side. There was some fluid in the abdominal cavity. On April 20, Professor Casini opened the abdomen in the middle line, and removed the spleen. There were some adhesions to the kidney, and especially to the pancreas, which formed part of the pedicle. The latter gave a good deal of trouble, and had to be tied in a number of separate pieces, a portion of the pancreas, which could not be detached, being seized between the blades of a pair of forceps, and crushed off; the stump of the pancreas was then stitched up, and, after careful cleansing of the peritoneum, the abdomen was closed. Very little blood was lost in spite of the difficulty which had been felt in securing the vessel of the pedicle. The spleen weighed three kilogrammes and 100 grammes (6¾ lbs.). The temperature on the first and second day was 100.4° F., after which it fell to a point a little above normal. On the seventh day the sutures were removed from the abdominal wound, which had healed by first intention. A few days later a small abscess formed in the abdomen on the left side above the level of the umbilicus; the patient, however, soon afterward passed a quantity of pus in her urine, and continued to do so for some time, the swelling meanwhile gradually disappearing. Toward the end of May she was discharged cured, and six months later she was still in perfect health. This makes the ninth splenectomy that has been performed in Italy, the first having been done in 1874. Of these operations five had a fatal result; the remaining four, which have all been performed since 1881, have been successful.—*British Medical Journal*, May 12, 1888.

Rectal Medication for Children.—Jacobi writes that the rectum of the infant and child has been rising in the estimation of the practitioner since the times of thermometry;

for it is certainly the safest and easiest place to take the temperature. For therapeutical measures it is also invaluable.

The rectum of the young is straight, the sacrum but little concave, the sphincter ani feeble, and self-control gets developed but gradually. Thus a rectal injection is easily either allowed to flow out or vehemently expelled. Therefore one which is expected to be retained must not irritate. The blandest and mildest is a solution of six or seven parts of chloride of sodium in a thousand parts of water. This may be made to serve as a vehicle of medicine, unless incompatible with the latter, which will be but rare. An enema which is to be retained must be tepid and small in quantity, half an ounce, or little more or less, and carried up well into the rectum, for the immediate contact with the sphincter may produce its expulsion. Care must be taken to exclude air from the syringe, which, for small quantities, must be a well-fitting piston syringe, of hard rubber, with a long nozzle. This must be well oiled, and introduced, not straight, but with a gentle turn, so as to avoid folds in the anal mucous membrane (in the same way a thermometer *ought* to be introduced). The nozzle must not be too thin, as it is liable to be caught; the smallest nozzles of fountain syringes are, therefore, in most cases improper; the larger size is more appropriate for any age. The injection must be made while the patient is lying on his side, not on his belly, over the lap of the nurse, for in this position the space inside the narrow infantile pelvis is reduced to almost nothing.—*Archives of Pediatrics*, May, 1888.

The Treatment of Tonsillitis.—Hillaby, in the *Practitioner* for April, 1888, describes his mode of treatment as follows:

Open the bowels freely with a good dose of mistura sennæ co., put the patient on milk diet, and administer the following draught:

R.—Sodii salicylatis . . . . grs. x–xv.
Tincturæ aurantii corticis . . ♏ x.
Aquæ . . . . . ad ℥j.—M.
To be taken every four hours.

When the inflammation in the throat begins to subside, reduce the dose of salicylate and continue to give it in smaller doses for a few days after all throat symptoms have disappeared.

Conception after Ovariotomy. — Wetherill, in the *Lancet* of April 28, 1888, reports the following extraordinary case, in which Dr. Bantock reports his operation as follows:

"The case was one of fibroid tumor of the uterus, in a state of cystiform degeneration. There were adhesions to the omentum (rather extensive and requiring many ligatures) and to the parietes low down on the left side of the middle line. After these were all broken down and bleeding points secured by ligatures, I tried to lift out the tumor, but it so invaded the broad ligament on the right side that its removal in the usual way was impossible. Fancying there was nothing now to be done but to remove the ovaries with the view of checking the growth of the tumor, I removed the left ovary, which was easily got at. The *right* ovary was nowhere to be found. I now looked again very carefully at the tumor, and, as it felt as if there might be some deep-seated fluid in it, I tapped it, and got out nearly a pint of dirty-looking fluid. There was nothing for it now but to lay open this cavity; its interior presented a very ragged appearance, characteristic of these cases. There was no way of removing the tumor, either by enucleation or along with the uterus, with the slightest prospect of success, so I laid the cavity very freely open in the direction of the abdominal wound, and stitched the edges to the corresponding edges of the parietes, leaving a large opening into the cyst. This I stuffed with iodized cotton-wool, after freely applying the thermo-cautery to the bleeding surfaces of a deep incision into a rounded portion of the tumor. The wound was kept open from time to time, small portions of the tumor were cut away (this always requiring the cautery to stop the bleeding), and a pointed cautery thrust into the tumor in various directions. Suffice it to say that in about three months the tumor had wasted away, so that very little of it remained, and, after a short time longer, the wound closed."

So much for the operation. The patient left the hospital a mere shadow of herself before her illness. Her life seems to have trembled in the balance for some time after the operation. Returning home, she came under my care. For four years she enjoyed fairly good health, having nothing more than an occasional attack of cystitis. She was now quite *embonpoint* and married. Then comes the marvellous portion of her history. She conceives! During the whole period of gestation she suffered from nothing except a little inability to hold her urine. This was worse when she had a little cold, each expulsive effort to cough causing her to expel the urine involuntarily. This, however, yielded to belladonna, morphia, and spirits of nitrous ether. In July, 1887, I delivered her of a fine healthy child. The duration of labor was quite normal, occupying in all about twelve hours. I forgot to mention that the cause of the involuntary acts of micturition might have been the anteversion of the pregnant uterus; in fact, she had pendulous abdomen. Since that time she has been in perfect health. She nurses her baby boy herself.

Oil of Turpentine as a Hæmostatic in Epistaxis.—Billroth has found oil of turpentine an excellent hæmostatic in epistaxis, and Ernyei reports a case recently treated, which had resisted other treatment, and which yielded to three tampons dipped in oil of turpentine, after bleeding had persisted for eight days.—*Correspondenz-Blatt für Schweizer Aerzte*, May 1, 1888.

Digitalin, Hypodermatically.—Huchard, in the *Revue Gén. de Clin. et de Thér.* of April 12, 1888, reports the following formula for the hypodermatic use of digitalin:

Digitalin. . . . . gr. 1½.
Alcohol. . . . . ℥ 10½.
Aquæ . . . . . ℥ 10½.

Dose.—Ten drops, injected deeply into the muscles of the nates or back, twice daily.

The Treatment of Diabetes.—Hofmeister, of Carlsbad, in the *British Medical Journal* of May 5, 1888 concludes that:

1. We are in total ignorance as to the etiology of diabetes mellitus.

2. The quantity of sugar found in the urine is of no

significance at all in judging of the severity and danger of any particular case of diabetes.

3. The smallest traces of sugar, found only by most careful chemical examination of the urine, are of considerable importance in a great many cases, so that they cannot be left out of account in trying to arrive at a correct diagnosis and prognosis.

4. The dietetic treatment must be adapted to the special requirements of each case, as there are cases in which without regard to the amount of sugar excreted, complete abstention from starchy matters is not only useless, but directly injurious.

5. According to the present knowledge, strict antidiabetic diet, combined with the use of the waters of Carlsbad, is the best method of treating diabetes mellitus.

MAYER, also, of Carlsbad, believes (*Ibid.*) that as far as the treatment is concerned, it appears that everything should be avoided that may impair the action of the heart and kidneys; for we know that organs which are in a state of hyperactivity easily become diseased. I may here refer to the frequent occurrence of valvular disease in nephritis, and of nephritis in diabetes. The latter I have found recorded in 30 out of 66 cases contained in the records of the Pathological Institute of Berlin. Stokvis has forcibly drawn attention to the same point in his able paper on diabetes read before the late Medical Congress at Wiesbaden, while I have seen nephritis in 64 out of 380 cases, although not frequently in the form of granular contracted kidney.

The principle of sparing the suffering organs as much as possible has, in my opinion, to be carried out particularly as regards diet. In many cases a rigid nitrogenous diet cannot be enforced. I have, on this account, during the last few years, frequently added milk to the diabetic diet, and can fully corroborate the favorable testimony which Hoffmann gave on this point before the late Medical Congress.

A Plan to Obtain Vaccine Lymph without Rupturing the Pustules.—DR. GRIGG, of Queen Charlotte's Lying-in Hospital, suggests a method of obtaining vaccine lymph without rupturing the vesicles, which must commend itself to the practitioner. The method has the further advantage of increasing the supply obtainable. He allows a drop of pure glycerine to fall upon the ripe vesicle, and this has the effect of withdrawing the lymph from the interior without any solution of continuityof the investing membrane. Judging from the results obtained by Dr. Grigg, in nearly three thousand cases, in only one of which did he fail to secure a satisfactory effect, the lymph thus obtained is fully as active as ordinary lymph. Dr. Grigg remarks incidentally that lymph obtained from infants less than fifteen days of age is always scanty in amount and unreliable. He also records the fact that in cases where only one of the punctures proves successful in the first instance, a more satisfactory result may be obtained by revaccination from the solitary vesicle, which remains stationary until the second crop attains the period of maturity, and then the whole number go through the retrograde changes together.—*Medical Press*, April 18, 1888.

General Rules for Cataract Operations.—KNAPP, in the *Archives of Ophthalmology* for March, 1888, lays down the following general rules for cataract operations:

1. Keep out bacteria or wash them off by germless, unirritating liquids: boiled water, boric acid and other indifferent substances dissolved in boiled water.

2. Prevent the multiplication of germs by antiseptics: watery mercuric bichloride, or alcoholic biniodide, chlorine water, nitrate of silver, and other substances in very weak solutions.

3. Perform the operation with the utmost degree of neatness and accuracy, and with a minimum of traumatism, avoiding bruising, scratching, and tearing of any kind, so as to reduce septic conditions to a minimum.

4. Endeavor to obtain primary union by freeing the wound from all foreign substances, by perfect coaptation of its edges, and by maintaining the greatest possible immobility of the organ until the closure of the section is firm.

5. Avoid constitutional infection of the wound. It is dangerous to operate for cataract as long as the constitution of a patient is under the active influence of a specific disease; for instance, articular rheumatism, acute or chronic suppuration, syphilis, and the like. In some incurable diseases—for instance, diabetes—we must select the time when the vitality of the patient is least reduced.

A Hæmostatic Pill.—HUCHARD prescribes:

Ergotin,	
Quin. sulph.	āā grs. 30.
Pulv. fol. digital.,	
Extr. hyoscyami	āā gr. ⅓.

Ft. pil. 20 in number.

To be used as indications demand.

Phenacetin as an Antipyretic.—GRENFELL reports, in the *Practitioner* for May, 1888, ten cases of diseases attended by pyrexia in which phenacetin, in five grain doses, proved useful, as follows:

Phenacetin is a slightly reddish, inodorous and tasteless powder soluble with difficulty in water, a little more soluble in glycerine, but most readily in hot alcohol; it is insoluble in acids (except glacial acetic acid) or alkaline liquids. Though absolutely tasteless it is most conveniently administered in capsules with water, this method admitting of the most accurate dosage.

In cases of pyrexia the action of the drug begins within half an hour after administration. The patient generally perspires freely, and feels drowsy. Sleep often follows, and pain is relieved, while the patient always says that he feels more comfortable after it.

The most satisfactory dose for an adult is about eight grains, and children bear the drug well. Since the above notes were written, it has been extensively used as an antipyretic and as an analgesic in neuralgia, and with good results..

The Treatment of Ozæna by Inhalation.—NOQUET prescribes:

Chloral. hydrat.	gr. ¾
Acid. boric.	gr. 90
Glycerin. pur.	ʒ 2½
Aq. lauro-cerasi	ʒ 5
Aq. destill.	ʒ 50

The spray should be thrown into the posterior nares, and the patient should expire it through the nostrils. —*Revue de Thérapeutique*, May 15, 1888.

The Medical News.

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THE PASSAGE OF GERMS THROUGH THE LUNGS.

ONE of the greatest difficulties in the germ theory of disease is that caused by our ignorance of the way in which the germs gain entrance to the body they infect. Experiment alone can never prove that an infection must arise in any given way. It can only show possibilities, while complete knowledge can only be gained by the slow lessons of general pathology and epidemiology. Nevertheless, it is necessary to learn all the possibilities of the relative ease with which various germs can cause infection, for as long as the impossibility of any one mode is not demonstrated, we cannot exclude it.

Most of the work heretofore done in experimental infection has been by feeding or inoculation. BUCHNER (*Münchener med. Wochenschrift*, Nos. 16 and 17, 1888) has recently made some interesting experiments in the inhalation of germs and has come to conclusions somewhat different from those heretofore held. The methods used consisted in exposing animals to a spray of dilute cultures of various bacteria, in such a way that only the finest mist of the spray reached them. They were thus not exposed to wetting through, and at the same time the minutest spray bubbles contained enough germs to produce the desired effect. Control experiments were made by feeding, so as to exclude accidental infection through the alimentary canal by swallowed spray. It was found that this accident was very rare, and also that the amount necessary to cause infection through the intestinal tract is much larger than that for the lungs. The bacteria used were those of anthrax, with their spores, and those of chicken cholera and septicæmia.

It was learned very early that an irritative reaction hindered the passage of germs through the lung. Especially was this the case when large quantities of bacilli were used, and in these experiments so great was the irritation that a hemorrhagic pneumonia resulted. The best results, therefore, were obtained from cultures in which the bacilli had been killed by drying, so that the spores alone reached the lung in condition to multiply. The development of the bacilli was a rapid one, and in a few hours the increase could be demonstrated by the microscope and by cultures. Nor could there be any doubt that an entrance to the lung had been effected, for the pulmonary capillaries contained bacilli in quantities proportional to the time elapsing between inhalation and examination.

The mode of entrance is clearly and, in our opinion, accurately explained by Buchner. That it is not through the lymphatic circulation can be supposed by the rapidity with which it occurs. While Arnold's experiments in dust-inhalations go to prove that a passage through the lymphatic gland is almost impossible for these particles, experiments with tuberculosis and glanders demonstrate that infectious matter can pass through with comparative rapidity. In Buchner's experiments, however, the passage was so rapid that it could not be other than a direct one. Buchner explains the *modus operandi* by an action much like that of leucocytes in inflammation. The chemical irritation exerted on the walls of the capillaries causes the formation of stomata, through which the bacilli grow. These experiments, therefore, show that the idea of "intact lung" is one that must be considered with certain limits.

Buchner's experiments also show what forms of infectious material are best adapted to pass through the lungs. They are preëminently the blood parasites, or those which are able to live and multiply in the circulation. The germs of anthrax, recurrent fever, and malaria are the most striking examples of the blood parasites so far known, while those of tuberculosis, typhoid fever, and cholera occupy, according to our present knowledge, but a doubtful position among them.

In infections caused by blood parasites the point of entrance cannot always be found. So in one of Buchner's experiments the kidneys and spleen were

affected very early, although the lungs showed no macroscopic lesion. This, probably, explains the mode of infection in "rag-pickers' disease." Even in the case of germs not strictly blood parasites it is possible for them to penetrate the lung capillaries and be transported to that part of the body where they afterward set up morbid actions. Typhoid fever may sometimes be caused in this way.

It must be remembered, in studying the subject of infection through the lungs, that although a smaller quantity can affect the system in that way than through the alimentary canal, still, outside of laboratories, the latter mode must be by far the most frequent. It is only necessary to mention typhoid fever and cholera to indicate our meaning.

ANTISEPTIC PROPERTIES OF CHLOROFORM.

Salkowski calls attention to the antiseptic properties of chloroform in an article in the *Deutsche med. Wochenschrift* of April 19, 1888. Having used chloroform for some years to preserve specimens of urine he was led to study its action on fermentative processes and certain pathogenic bacteria. Chloroform dissolves in water in the proportion of about 5 to 1000 by volume, and in that proportion protected from evaporation, prevents the fermentations due to bacteria, such as ammoniacal in urine, the alcoholic, lactic, milk, and hippuric, and the putrefaction of albuminous material, while the action of unorganized, soluble ferments—enzymes—as ptyalin, pepsin, trypsin, etc., is not affected. This latter fact was partially known before. In this way chloroform is particularly convenient in revealing the presence of minute quantities of ferments, the actions of which are only developed after some months. Microörganisms are avoided, the organic tissues are not acted on by the preservative, and the latter can be removed, at will, by evaporation.

Anthrax and cholera bacilli are easily killed by chloroform, though the anthrax spores resist its action. Among the manifold uses of chloroform are the following:

For preserving urine, urea solutions, watery solutions of ferments of all kinds, pathological fluids of all kinds, except blood which gradually coagulates; in digestion experiments, especially with trypsin, etc., and for preserving small anatomical preparations, chloroform water or the vapor alone may be used, except when extraction of blood coloring-matter would offer an objection.

Salkowski also points out some further uses of chloroform which are worthy of trial. These are: the preparation of solutions for hypodermatic injection; as an intestinal antiseptic; and in case of need as an external antiseptic and disinfectant. It might also be used in mouth washes.

In a note Salkowski writes that most of the ethylic chlorine compounds possess antiseptic properties, though not excelling chloroform, and that the latter, from its volatility, is the one most available as a respiratory antiseptic. Further experiments are promised on this subject.

A NEW MIASMATIC DISEASE.

Gerlier has extended the list of cases of vertigo with palsy—*le vertige paralysant*—previously described, and has sought, in an article in the *Revue Médicale de la Suisse Romande* for January and February, 1888, to render the clinical picture of this curious disease more exact. The cases occurred at a number of scattered farms, in the neighborhood of Ferney, Switzerland. The sudden paroxysm, occurring, as a rule, in the afternoon, is characterized by disturbances of vision, transitory palsies, and spinal pain. The patient, seized at his work, all at once bows his head, leans upon any implement he happens to have, and, in the attitude of the peasant in Millet's picture, "The Angelus," awaits, immobile, the end of the attack. The attacks are much less common in the morning after a night's rest than later in the day. They are provoked by very trifling movements, excitement, and so forth. The duration of a single attack does not usually exceed one or two minutes, but they are apt to occur in series, extending through some hours.

Gerlier regards the disease as due to an infection which acts chiefly upon the nervous system, and which is derived from the surroundings of improperly drained stables.

The Medical Society of New Jersey will hold its Annual Meeting at the Heath House, Schooley's Mountain, on Tuesday and Wednesday, June 12 and 13, 1888, commencing at 4 o'clock P. M., on Tuesday, under the Presidency of Dr. John W. Ward, of Trenton.

The Ontario Medical Association holds its Eighth Annual Meeting at Toronto, on Wednesday and Thursday, June 13th and 14th next.

The Twenty-third Annual Meeting of the Michigan State Medical Society will be held in Detroit,

Thursday and Friday, June 14 and 15, 1888, beginning at 10 o'clock in the morning.

The British Columbia Medical Council has elected the following officers for the ensuing year:

President.—J. C. Davil, M.D.

Vice-President.—W. J. McGuigan, M.D., M. C. P. and S., Ont.

Registrar and Secretary.—G. C. Milne, M.D.

Treasurer.—E. B. C. Harrington, M.D.

Solicitor.—Mr. Walker.

The sale of narcotic medicines at country grocery stores is dangerously prevalent. At Mineola, on Long Island, the grocer of the town, who knows nothing of pharmacy, sold to a customer a quantity of bromide of potassium, from which an overdose was taken by the patient and death was the result. An inquest was held and a verdict of censure was entered against the storekeeper for having, without license and in violation of the State law regulating the sale of poisons, sold the deadly dose.

Dr. H. W. Boone, a missionary to China, publishes in the *China Medical Missionary Journal* an account of his visit last year to this country and to its leading universities and hospitals. He notes, in terms of commendation, the changes that have come over the method of medical instruction since his own days of earlier study, specifying the growth of clinical teaching and of laboratory work. Of the profession he gives a bird's-eye view in a few words: "There is an earnestness among the higher grades of the profession which strikes one; they love their work for their work's sake, and they are fully imbued with the dignity of their profession. The successful ones are well paid and they live in the elaborate and expensive style of the world around them. They are of the world, and yet by their profession they are above it. Much excellent work is being done there; the leading schools are well up to the times, and the standard of medical and surgical work among the leaders of the medical world is a high one."

A great variety of denominations and nationalities about New York find the means to establish institutions of healing in the name and interests of their respective classes. A French hospital is the latest to be projected. Two houses will be purchased, at a cost of $55,000, and fitted up with a capacity of fifty free beds and ten private rooms; a dispensary will be added later, if the necessities of the poorer element of the French colony appear to demand it.

At the meeting of the Board of Trustees of the New York Post-Graduate Medical School, held on Monday, May 28, 1888, the following appointments were made in the Faculty: Abraham Jacobi, M.D., Professor of Diseases of Children; Robert F. Weir, M.D., Professor of Clinical Surgery; Peter A. Callan, M.D., Professor of Diseases of the Eye; L. Bolton Bangs, M.D., Professor of Diseases of the Genito-Urinary Organs and of Venereal Diseases; Joseph E. Winters, M.D., Professor of Diseases of Children; O. B. Douglas, M.D., Professor of Diseases of the Nose and Throat.

Dr. William A. Hammond, being about to remove to Washington, has resigned his position as Professor of Mental and Nervous Diseases. Dr. Hammond was one of the founders of the School.

Professor Wroblenski, member of the Medical Faculty of the University at Krakau, died recently from blood-poisoning contracted during an experiment performed before his class.

SOCIETY PROCEEDINGS.

AMERICAN MEDICAL ASSOCIATION.

Thirty-ninth Annual Meeting, held at Cincinnati, May 8, 9, 10, and 11, 1888.

(Specially reported for The Medical News.)

SECTIONS.

SURGERY.

(Concluded from page 589.)

Thursday, May 10th.—Morning Session.

Dr. E. H. Bradford, of Boston, presented a paper on

THE FORCIBLE AND IMMEDIATE REDUCTION OF OLD SUBLUXATIONS.

The essayist proposed a method of treating especially old subluxations of the knee-joint, as follows: The patient being anæsthetized, the knee is forcibly flexed in order to break up the intra-articular adhesions. An apparatus devised by the essayist is then applied and pressure from behind forward by means of screw-force brought to bear upon the head of the tibia. The skin is abundantly padded, and the nerves and vessels are sufficiently protected by the muscle bellies of the region. After this is effected the limb should be held straight and secured against recontraction by a plaster-of-Paris bandage, applied high up in the thigh and including the whole leg and foot. The patella and joint should be well protected with cotton before the application of the plaster.

DR. P. S. CONNER, of Cincinnati, reported a case of

PRIMARY SARCOMA OF THE SCALP,

in which he had twice removed a sarcomatous growth from the scalp of Mrs. S., aged thirty-five years, white, native of eastern Kentucky. The primary growth had been noticed fifteen years before as a hard lump, the size of a bean, on the back part of the head. For thirteen years it remained of stationary size, then grew rapidly, until when excised, October, 23, 1885, it looked much like a second head, and weighed, after removal, about five pounds.

Eighteen months after the operation the patient noticed a small tender spot, and soon after a hard lump, which increased slowly for three months, then more rapidly. She was about a month advanced in pregnancy when the recurrence was observed. After her confinement, in January, 1888, the growth was excessively rapid, measuring, in March, antero-posteriorly, eighteen inches, laterally, seventeen and one-half inches. The mass was again removed and weighed seven and a half pounds. Five weeks after the operation, the patient left for her home, the granulating wound being in excellent condition.

The interesting points in the case, the speaker said, were the long absence of any change in the original nodule, the marked influence of pregnancy and lactation upon the growth of the tumor, both primarily and in recurrence, and lastly the immense size of the growth. A primary sarcoma of the scalp is of great rarity. No hard, indolent lump in the scalp should be permitted to remain, even though for years in an unchanging and unchanged condition. Probably benign and to continue such, it may not be so now or in the future.

DR. JOSEPH M. MATHEWS, of Louisville, presented

SOME OBSERVATIONS UPON TWO THOUSAND OPERATIONS ON THE RECTUM,

in which he confined himself to the consideration of hemorrhoids, especially the internal variety. The causes, classification, dangers, and treatment were fully discussed. Referring to the classifications proposed for this class of diseases, the speaker stated that he thought the division into external and internal piles sufficient for practical purposes, as there was no ground for the making of distinction between the so-called venous, arterial, and capillary dilatations. He strenuously opposed the treatment by carbolic acid on account of its danger; quoting in this connection what is said by Dr. Andrews in his later work on *Diseases of the Rectum*. The clamp and cautery and excision were also considered. The speaker preferred the ligature to all other methods of treatment.

DR. H. H. GRANT next read a paper entitled

INTRA-PERITONEAL RUPTURE OF THE BLADDER.

Though among the rarer lesions for which abdominal section is appropriate, the still rarer comparative success after the operation lends an interest to the few recorded recoveries after laparotomy for its relief. He asked attention to the history of the operation, now about ten years old. It is a remarkable fact that though indefinite references to the propriety of attempting suture of the bladder after laparotomy for rupture have been made by Gross, Larry, Cussock and others, yet except the suggestions of Holmes in his *Principles and Practice of Surgery*, in 1875, nothing like a definite operation is mentioned for it in any text-book on surgery published prior to 1880. Mr. Revington (Heath's *Surgical Dictionary*) declares that up to that time intra-peritoneal rupture of the bladder, however treated, had been uniformly fatal, excepting only Watters' case (*Med. and Surg. Rep.*, Feb. 1862) of laparotomy without suture.

This is, perhaps, the only laparotomy for the lesion under consideration until Mr. A. Willett, in 1876, closed by suture the bladder rent and abdominal wound (*St. Barthol. Hosp. Rep.*, 1876, xii.). Thus to Mr. Willett is due the credit both of the originality of the operation and the details of its performance. His operation was not, however, a success, as death occurred from peritonitis in twenty-three hours. In 1878, Mr. Christopher Heath (*Med.-Chirurg. Transact.*), forty-eight hours after accident closed by continuous catgut suture an intra-peritoneal rent; leakage and extravasation occurred and death on the sixth day.

In 1883, Pilcher (*Treatment of Wounds*, p. 370) commenting on these cases, describes with references to Vincent and Stein, the operation afterward successfully done by MacCormack in two cases in 1886, and now recognized with slight modification as the perfect technique.

He presented a table which he had formed in part from that of MacCormack, published in 1877, with fuller details supplied to some of his cases, published since his table and the addition of four cases operated upon since that time. He then reported a case upon which he had operated by this method, the steps of which were fully described, with the result a perfect success.

All observers, he said, are in accord as to the importance of an early operation, within eight to ten hours after the accident if possible. The symptoms are usually distinct and the diagnosis clear—great pain, severe shock, desire to urinate with futile attempts, perhaps a little bloody water by catheter. Yet the condition may be greatly obscured. Most authors refer to intra-peritoneal rupture of the bladder as a rare accident; but the essayist thought its appearing rare was due in a great measure to its being frequently overlooked.

AFTERNOON SESSION.

DISCUSSION ON ABDOMINAL SURGERY.

DR. P. S. CONNER, of Cincinnati, in opening the discussion, expressed regret for the absence of Dr. Hunter McGuire, to whom he had assigned the opening address. He felt sure that he voiced the sentiments of the Section when he expressed his high appreciation of the papers presented to the Section yesterday; papers which presented the results of experience and experiments, which give us positive rules in the treatment of cases of the most difficult character. And last of all there was presented the most beautiful demonstration that had ever been given to the profession of this country. Nothing could excel the labor and patience with which were worked out the experiments presented yesterday. Dr. Senn, literally absolutely, in every sense, threw light upon an exceedingly dark subject. No cases give us more anxiety, either in the detection of the difficulty or in the treatment of it than those of intestinal obstruction. If we were to believe all that we read and a good deal that we hear, we would suppose that it is an easy matter to determine the character of an intestinal

obstruction. The diagnosis has been very positively laid down, but, however clear the diagnosis may be in the books, it is very different with patients in bed. It is sometimes very easy to determine what the nature of the difficulty is; in other cases, notwithstanding the employment of the most accurate methods of investigation, it is very difficult to determine what the difficulty is or where that difficulty is located. In most cases it is easy to determine what is to be done when the diagnosis has been made, but, after all, it is the determination of the difficulty itself that gives us most trouble.

Leaving out of consideration the inquiry whether the case is one due to an intussusception, a constricting band, a twist of the intestine, the pressure of a tumor, etc., we have two kinds of cases to deal with: First, rapidly developed obstruction in patients of good health, and, second, slowly developed obstruction in patients whose health may be good or bad. We might add to this a third variety, namely, those cases in which the suddenly developed obstruction follows chronic trouble in the intestinal tract.

Letting the patient alone may and frequently will terminate in recovery, but it will frequently result in the death of the patient. When recovery follows the let-alone plan of treatment, we congratulate ourselves upon the successful issue of the case. Who of us, on the other hand, has not seen active interference made in these cases where it terminated fatally?

To discuss this question to-day is a very different thing from discussing it ten years ago. Abdominal surgery has made rapid progress; some of it, he was about to say, too rapid and apt to lead in the wrong direction. Active interference is the only rule in the treatment of intestinal obstructions to-day. The proper discovery of the seat of the lesion, the removal of the difficulty and putting the patient in a proper way for recovery are the ends we seek. A world of truth was expressed yesterday by Dr. Moore when he took exception to the remark that the abdomen might be opened with impunity. It is not a little thing to open the abdomen. That laparotomies have killed patients we know too well. Failure of success is often due more to the condition of the patient than to the character of the difficulty.

DR. S. H. WEEKS, of Portland, Maine, expressed his high appreciation of the great value of the papers that had been read. He desired to emphasize the fact that the discussion was limited to the treatment of intestinal obstruction in its *surgical aspects*. It is not every case that is to be treated by surgical measures; many cases are to be treated by medicinal means. He then narrated a case which simulated the passage of biliary calculi, and was so diagnosticated before laparotomy was much in vogue; but the autopsy, four days later, revealed an obstruction which could have easily been relieved by surgical means. He spoke also of a case presenting almost the same symptoms in which the obstruction, high up, was occasioned by the binding down of the omentum after it had wound itself around a loop of the intestine; and of a third case in which he operated upon a man almost moribund, found the obstruction, removed it and gave almost instant relief. The operation, he remarked, should not be too delayed, until the intestine becomes gangrenous.

In conclusion, he remarked that the modern surgeon should no more permit his patient to die unoperated upon with an internal strangulation than he would permit him to die of an external strangulated hernia. Sudden stoppage, great pain, great prostration, feeble pulse, anxious expression, restlessness, nausea, vomiting—these symptoms speedily becoming pronounced, are those upon which we rest our diagnosis of an acute obstruction. And when the surgeon feels that he is in the presence of an acute obstruction, a great responsibility rests upon him, and he makes a great mistake if he fails to perform his duty.

DR. D. S. CAMPBELL, of Detroit, read a paper on

ELECTROLYSIS AS A PRIME AGENT IN THE REMOVAL OF NASAL AND PHARYNGEAL NEOPLASMS.

The therapeutic value of the galvanic current in urethral hypertrophic catarrh, fibromata, and mucoid growths of the uterus, etc., owes its demonstration chiefly to Apostoli, of Paris. The essayist had come to the conclusion, after careful manipulation of this particular kind of chemical force in a large number of cases suffering principally from nasal and pharyngeal neoplasms, that its therapeutic value is worthy of consideration. He dwelt, for the most part, upon the nature of the galvanic current and its effect upon living tissues, from which he passed to the illustration of the results which follow its systematic application in a case of fibroid tumor. His experience led him to the conclusion that the strength and frequency of application, as well as the strength of current employed, must correspond to the peculiarities of individual growths. No rules can be advanced.

DR. H. LANDIS GETZ, of Iowa, next described and exhibited

AN ANTISEPTIC SURGICAL CABINET.

The cabinet was devised for the purpose of enabling the surgeon and gynecologist to avoid the application of chemical agents to fresh wounds in order to render them aseptic, especially in major operations. The cabinet consists of a gauze-covered framework about six feet in all dimensions. In constructing it, the frame is first put together in a position to surround a window. Just before the cloth is suspended over the frame, it is dipped in a solution of mercuric bichloride, 1 : 500 or 1 : 1000, thus, as the essayist claimed, being rendered impervious to microörganisms. The floor was covered with the same aseptic cloth. A special arrangement was added for the introduction of fresh air from without. The advantages claimed for it by the inventor are briefly: It purifies the air by a process innocuous to the wound surface; it is easily and quickly constructed; cheap, simple, efficient; it admits circulation of air without currents; strong germicides may be used without danger to the patient: and many other features of greater or less supposed value.

DR. W. VAN HOOK, of Chicago, called attention to the method employed by Dr. David Prince, of Illinois, for rendering the air in the operating-room aseptic, and stated that it has proved successful in the room used by its originator. He did not believe, however, that a perfectly aseptic room could ever be devised, for the reason that every operator carries enough germs in his mouth and nostrils "to poison the entire mass of humanity." Owing to the agglutinating properties of the mucus lining the air passages, however, these germs are not expired with the expired air, which has been found to be comparatively aseptic.

DR. T. D. DAVIS, of Pittsburg, then read a paper on

GRADUAL DILATATION OF ŒSOPHAGEAL STRICTURES.

He stated in introduction that he referred only to cicatricial strictures of the œsophagus. These are produced by any cause that will destroy its coats. When either its mucous or submucous coat is destroyed, the resulting cicatrix is composed of smooth, hard, imperfectly organized tissue that projects in ridges, or causes the adjacent mucous membrane to be puckered up in folds. If the continuity of the deeper tissues be destroyed and the muscular coat is destroyed, the resulting cicatrix is very firm and callous, and the passage much contracted. Secondary hypertrophy of the mucous membrane may follow. The various causes which may produce cicatrices of the œsophagus were next reviewed, chief among which was the drinking of concentrated lye. The number of individuals, for the most part children, who are annually victims of this dreadful accident, the speaker said, is appalling, and far beyond the published reports. The speaker thus described the first case in which he had practised gradual dilatation:

In April, 1880, Henry C., aged four years, had been playing in the yard and came crying into the house with his mouth bleeding. . . . From information received afterward, I have no doubt that he swallowed a solution of concentrated lye from an old empty can that had been carelessly thrown in the yard. . . . In five weeks I was called to see him again, when I was informed that he was having repeated attacks of vomiting. He had lost considerable flesh and his face presented the haggard, anxious look of craving hunger. An œsophageal stricture was at once diagnosticated, and with the assistance of Dr. W. R. Hamilton, a No. 2 flexible catheter was with great difficulty passed through to the stomach. The difficulty was caused first by the great dilatation of the œsophagus that had taken place above the stricture, making it extremely hard to find the natural passage and avoid making a false opening through the attenuated walls; and, secondly, by the size of the stricture itself which grasped firmly the small catheter. . . . Immediately after the passage of the catheter, the child was able to swallow a few spoonfuls of milk, but in a few hours the tenacious mucus would again accumulate and occlude the passage. In a short time the child realized the relief afforded him by the dilatation and waited rather anxiously for the operation, often bringing me the tube to insert. In order not to hurt him, to retain his cooperation, I increased the size of the tubes very slowly, and thus stumbled upon a very satisfactory plan of treatment—that of very gradual dilatation.

After six weeks of this careful dilatation, the speaker entrusted the operation to the parents, and in five months the œsophagus had obtained a size equal, as he believed, to that of the normal passage in a child of that age, admitting of the passage of No. 2 rectal bougie.

In conclusion, the following propositions were advanced:

1. Too much weight has been given to spasmodic stricture of the œsophagus by Michel, Campbell, Smith, and others. That involuntary muscles can even have tonic spasms at all is a question, but to hold with Campbell that such a spasm can continue for eight days calls for a stretch of the imagination beyond my power. At no time did I have any evidence of spasmodic stricture in these cases. Any difficulty in introducing the dilators was due solely to causes mentioned. The relief given by passing the bougie is readily explained, not by its overcoming spasm, but by its removing the tenacious mucus, or some article of food that had clogged the passage or lodged on the shelf of the stricture.

2. The advantage of the early introduction of the bougie to prevent dilatation of the œsophagus above the stricture is clearly manifested by the history of these cases.

3. The second case certainly contrasts the rapid and gradual plans of treatment to the great advantage of the latter. To "make haste slowly" is the only safe rule. The gradual method being almost painless and giving great relief, secures the coöperation of the patient. It avoids, too, great irritation and danger of inflammation and rupture, all of which are likely to follow rapid dilatation.

4. Is not the occurrence of seventeen accidents in Pittsburg alone enough to second Dr. Campbell's proposition that some legal restriction should be placed on the sale of this intensely dangerous substance?

FRIDAY, MAY 11TH.—MORNING SESSION.

DR. WELLER VAN HOOK, of Chicago, read an abstract of his paper on

SACRO-ILIAC TUBERCULOSIS.

The clinical characteristics of tuberculosis at the sacro-iliac joint partake of all the general characteristics of tuberculosis of other joints. The sense of deep bogginess over the joint indicating chronic inflammatory involvement of the deep structures, and œdema of the soft parts above are present here as well as in morbus coxarius. The loss of function, the pain on pressing the bones together, the tenderness over the joint cavity, the change in attitude, the tumefaction and finally, the sense of fluctuation yielded by fluid exudates are common here as in tuberculosis of the knee or ankle. In older cases in which cold abscesses have formed and have opened outward, we find fistulæ running in a great variety of directions from the starting-point in the joint itself.

Notwithstanding the study which has been bestowed upon these joint affections, we are compelled to limit our deductions, after locating the disease, to a determination of its tendencies from a single symptom—viz., the presence or absence of cold abscesses; for other symptoms are of comparatively little prognostic value. Of thirty-eight cases of sacro-iliac tuberculosis with abscess, collected by the essayist, only one, that of Hilton, recovered without operative interference of some sort.

On the other hand, with the observance of hygienic laws, with the application of complete mechanical rest, fifteen out of a total of sixteen collected cases without abscess went on to complete recovery, the only death being due to an older suppurating tuberculosis of the knee-joint. But though the cases without abscess tend to recovery, we have numerous examples to prove that cases originally devoid of abscesses can proceed, chiefly under imperfect treatment, to local extension, abscess formation, and eventually death.

The moist form without mixed infection may end in recovery, as doubtless did Hilton's case, by resorption of fluid matter and capsulation of the detritus. Instead of

the fluid being resorbed, it may be discharged externally, the original focus being enclosed as before in a scar.

Death occurs in the moist form from sapræmia or septicæmia due to mixed infection; from simultaneous or intercurrent local tuberculosis elsewhere, as in the intestine, peritoneum, and lungs; or from general miliary tuberculosis.

Previous to the period when radical operations came into vogue for the treatment of tubercular arthritis, the treatment of sacro-iliac tuberculosis was on a par with that of other joints. Erichsen, in his celebrated clinical lecture of 1859, describes the treatment as properly including, besides internal remedies, rest with counter-irritation during the period prior to abscess formation, and opening of abscesses by valvular incisions when they are large and chronic. He regarded operative interference as out of the question. The essayist here stated that Dr. L. A. Sayre, of New York, had reported to him a case, not published, in which he had in 1853 opened the joint of a child posteriorly and gouged out carious bone with recovery.

It is only within the last five years that operators have begun to consider seriously the question of radical treatment of the disease, operations having been performed by Tiling, of St. Petersburg, in 1883, and two in 1887 by Gant, of England.

He recommended two operative procedures, according to the extra- or intra-pelvic location of the abscess. The method of reaching the lesion when the abscess is extra-pelvic is that practised in the cases operated upon by Sayre, Tiling, and Gant—namely, by simple incision over the joint, and curetting with the usual instruments. When only intra-pelvic abscesses have formed, and we have reason to believe that the disease process lies chiefly in the anterior part of the joint, we must have resort to the second procedure, by which, if possible, the posterior and sound part of the joint need not be disturbed. It must be remembered that the articular surfaces of the sacrum and ilium are directed antero-posteriorly—that is, almost perpendicularly to the flat surface of the skin overlying the sacrum. Hence the broad expansion of the joint surfaces lies at a depth in the adult of two and a half to three inches from the surface. This surface may be reached thus: The patient lying on the unaffected side with the thighs in exaggerated flexion, a longitudinal incision exposes the posterior superior spinous process of the ilium from which the periosteum and tendinous attachments of muscles are removed by dull instruments. With a pretty large chisel a piece of bone is now cut away from the iliac spine so as to allow the passage of the finger into the pelvis, the interosseous ligaments having been divided by a knife. The anterior and larger part of the articulation is thus exposed to the touch of the surgeon, who, with the aid of a Volkmann's spoon with a long curved handle, can easily reach tubercular matter both in the bones and in the soft parts. An operation done by the speaker under the direction of Dr. Christian Fenger was narrated in illustration.

In conclusion the following points in treatment were proposed for further consideration:

1. Hygienic and symptomatic treatment, with counter-irritation by means of the thermo-cautery where pain exists or where improvement is slow, should be combined with complete mechanical rest aided by extension in all cases where abscesses have not formed.

2. Cases exhibiting abscesses should invariably be subjected at the earliest practicable moment to a thorough radical operation by curetting performed posteriorly—that is, directly—when the abscess is extra-pelvic in origin; performed as just described, anteriorly, whenever the abscess originates within the pelvis.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, May 11, 1888.

SECTION ON NEUROLOGY.

W. R. BIRDSALL, M.D., CHAIRMAN.

DR. W. H. THOMSON read a paper on

DIPHTHERITIC PARALYSIS,

which will appear in full in an early number of THE MEDICAL NEWS.

DR. A. JACOBI referred to the course and kinds of diphtheritic paralysis. There are undoubted cases of central origin on record, he said, and a few cases of ataxia had been observed. He believed that Dr. Thomson was correct in assuming that the paralysis is not to be taken as sequela of diphtheria, but rather as really part and parcel of the disease. If there is any disease which runs an indefinite course it certainly is diphtheria; this course sometimes being extended for many months. One difference between this and the other contagious diseases is, that once having had it, the subject is all the more liable to subsequent attacks. In many instances, he believed, those repeated attacks simply show a continuation of the disease, which is hidden away in the tonsils or lymph bodies, and liable at any time to fresh outbreaks.

As a rule, the paralysis first appears in the fauces, affecting deglutition, and then successively in the muscles of ocular accommodation and in the extremities. Finally, there may be respiratory paralysis, which often proves fatal. This order cannot be relied upon in every instance, however, and, in making a diagnosis in cases where there have been no throat symptoms, one of the main points to be depended upon is the fact that in diphtheritic paralysis only a comparatively small number of muscles is usually affected at the same time. Another point is the fact that the sphincter muscles are so rarely affected that this can be said to be almost never the case.

He then went on to say that paralysis not infrequently comes on during the acute stage of diphtheria. In heart-failure, which is so common an occurrence in this disease, there is no doubt a failure of the heart nerves, either the sympathetic or the pneumogastric. This is an accident liable to occur in any case of diphtheria, and he had therefore always insisted on the free administration of alcoholic stimulants and cardiac tonics from the very first. After symptoms of heart-trouble have once appeared it is usually too late for such remedies to do any good. Respiratory paralysis is about as fatal as heart failure. Hence the most energetic measures are called for to combat it, and strychnia and electricity should be pushed to the utmost extent possible.

DR. ANDREW H. SMITH said that it seemed to him very remarkable that we should so frequently have recovery from diphtheritic paralysis when the anatomical lesions were as marked as they were. The paralysis

had always also been somewhat of a stumbling-block to him in trying to accept the hypothesis that diphtheria is originally a merely local disease. He had no doubt that there were cases of diphtheria in which no membrane ever appeared, and the fact that instances are on record in which diphtheritic paralysis occurred without any previous throat symptoms, certainly goes to sustain the idea that diphtheria is essentially a general disease; while the membrane is only an indication of it, just as the erythema of scarlatina is the outward manifestation of that disease. In scarlatina and the other exanthemata the eruption does not constitute the disease. Dr. Smith then referred to the case of a child whose mother had diphtheria in which the diphtheritic membrane appeared, not in the throat, but in the groin, where the skin was chafed. It is also remarkable, he went on to say, that in cases of diphtheritic paralysis not preceded by the appearance of membranes in the throat, the paresis usually begins in the fauces. This would seem to indicate a peculiar predilection of diphtheria for this region, aside from the simple deposit of membrane there.

DR. L. PUTZEL said that he did not understand exactly what Dr. Thomson meant by the post-latent stage of diphtheria. This disease is different from scarlatina because in scarlatinal nephitis the bactenum which is the exciting cause of the acute affection still remains in the system. It seemed to him more probable that the acute attack of diphtheria leaves the nervous system in a weak condition, in which any slight cause may bring on paralysis. As regards the fact that the paralysis usually makes its first appearance in the fauces, the reason for this seemed to be because the throat is so much affected in the acute attack. As to those rare cases in which paralysis occurred without any previous local trouble, he was not aware that a sufficient number of them had been observed to base any conclusion upon.

DR. MALCOLM MCLEAN described a very severe and prolonged attack of diphtheritic paralysis occurring in his own person a few years ago, in which, he said, more muscles and a greater extent of cutaneous surface were affected than is usual in cases which recover. It lasted for four and a half months, and involved the muscles of respiration as well as those of the throat and of both the upper and lower extremities, but did not affect the sphincters. With the paralysis there was marked hyperæsthsia. On the fourth day of the acute attack of diphtheria, which preceded the paralysis, symptoms of heart failure appeared, and the heart continued weak throughout the course of the subsequent paralysis. On one occasion the pulse fell to 32 (afterward suddenly rising for a time to 160), and this was accompanied by a most violent attack of angina pectoris, which nearly proved fatal. The ordinary rate of the pulse was 52. The practical point which Dr. McLean said he wished to impress was the necessity in such cases of the most absolute rest. In his own case he was treated for a long time with faradization and galvanism, and in order to receive the treatment was taken in a carriage to the office of the gentleman who applied them. Although they were employed with the greatest skill, he only grew worse instead of better; with the exception that the original paralysis of the fauces was markedly relieved. At length so great was the pain and discomfort which he suffered that he determined to take absolute rest in bed; and as soon as he adopted this course he began to improve. He remained in bed for a month, and the result was so satisfactory that he was firmly convinced that in these severe cases unless this absolute rest is insisted on, no other treatment will be of any avail.

DR. S. SEABURY JONES mentioned a case of tabes dorsalis which occurred in a druggist who had received a wound in the hand while asssisting at a tracheotomy performed on a diphtheritic patient, the paralysis commencing in the wounded hand. In such cases, according to Trousseau, the paralysis sometimes attacks the throat first. He then referred to the case of a mother whose child had diphtheria, but who did not have any membranes, as far as could be ascertained, although she complained of her throat. The woman consulted him for difficulty in swallowing, with numbness of the tongue and impairment of the sense of taste. The case resembled one of bulbar paralysis, but the patient made a good recovery under the use of iron and strychnia. In diphtheritic paralysis he believed the lesion might be either central or peripheral; but Trousseau in his classical work had brought out so beautifully all the points in connection with the subject that little or nothing remained to be said upon it.

DR. BIRDSALL said that as regards the pathology of diphtheritic paralysis, he also believed that while in many instances there was simply a neuritis, cases of undoubted central origin sometimes occurred. In the latter, however, the central lesion was apt to give rise also to peripheral degeneration. In adults diphtheritic paralysis is relatively more frequent than in children, and it very often occurs in cases in which the original attack of diphtheria is very slight. As to the matter of heart failure, it is a question whether the trouble is of the same nature as the paralysis noted after the acute attack, or whether it is merely functional in character. A point against its paralytic origin is the early stage at which it occurred. As to the etiology of diphtheritic paralysis it seemed to him entirely possible that it might be due to the original poison causing the disease; the delay in its appearance being perhaps attributable to the comparatively long time which it takes for such toxic agents to act upon the nervous system.

DR. THOMSON said that he had purposely refrained from taking up the subject of heart failure in the paper, since it presented so many complications. He doubted very much, however, whether it was due to the mere cause as the later paralysis. In many cases he believed there was myocarditis, and it seemed probable that this was the fact in Dr. McLean's case. He had not touched upon the topic of therapeutics in the paper, but he quite agreed with Dr. McLean that electricity is of no service. It is highly desirable to stimulate the peripheral extremities of the nerves, and this can be best accomplished by applying to the throat equal parts of honey and red or black pepper. In paralysis of the extremities a solution of pepper (a drachm to the pint) is also a useful local application. As to Dr. Putzel's reference to the post-latent period of diphtheria Dr. Thomson said that the paralysis is an indication of processes going on subsequently to the acute stage, and this post-latent stage he believed to be a general characteristic of all the acute fevers. The post-latent stage varies in its manifestations in the different diseases, and it seems probable that its phenomena are due to the presence of ptomaines in the system.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, May 4, 1888.

THE PRESIDENT, JAMES PERRIGO, M.D., IN THE CHAIR.

DR. RICHARD MACDONNELL exhibited a heart with a

PATENT FORAMEN OVALE.

He said that, during the practical anatomy course of last session at McGill University, a heart was found in which the foramen ovale was patent. The body was that of a woman aged twenty-five, who had died in the Montreal General Hospital, of phthisis, with empyema. Dr. MacDonnell saw her first in 1883, when she came to the out-patient department with primary syphilis. She was very thin and very delicate, but there was no evidence whatever of any vascular derangement. Her mental faculties were defective. During that year she was a constant attendant at the clinic, presenting well-marked symptoms of secondary disease in many of its forms, notably alopecia, sore throat, and iritis. In 1884 and 1885 she was admitted into the wards on several occasions and her chest was examined frequently, but no evidence of cardiac disease was ever made out. The last admission was upon May 8th, when distinct evidences of phthisis were apparent. She died on the 7th of June, 1887, with extensive softening of the right lung, with thickened pleura containing pus. Dr. MacDonnell thus had the case under observation for four years without ever having perceived any cardiac symptom or physical sign. The opening in the fossa ovalis was of large size.

DR. BELL presented a specimen of

EXOSTOSIS BURSATA,

which he had removed from the inner side of the lower end of the right femur of a boy aged twenty. The bony growth was about the size of an orange and appeared to spring from the condyle below the epiphyseal line. It had a bony pedicle three-quarters of an inch long and half an inch in diameter, and grew upward and inward. Its surface was covered with cartilage in small isolated nodules, which were closely placed and formed a continuous layer over its surface. The whole was inclosed in a perfectly formed synovial membrane, which was continuous with the periosteum of the pedicle. This sac contained half an ounce of clear amber-colored synovial fluid in which loosely floated fifty-four cartilaginous bodies, looking exactly like the floating cartilages found in the knee-joint. These varied in size from a bean to a small pea.

The tumor was first noticed nine years ago as a small, soft and "movable" growth about as large as a marble. It grew steadily, and only four years ago became fixed and felt hard. There never was pain in connection with it, but the patient complained of its inconvenience, and the fatigue of the muscles in walking up-stairs.

Dr. Bell stated that the only record of any similar cases he had been able to find, was in a paper read by Dr. Fehleisen at the Fourteenth Congress of German Surgeons, held at Berlin in 1885. Fehleisen reports a case which had recently occurred in Prof. Bergmann's clinic, and refers to another which had been seen in Billroth's clinic in 1863. These he believed to be the only ones on record at that time (April, 1885). Dr. Bell said these two cases corresponded exactly with the one now related by himself. In Bergmann's case the synovial membrane contained about 500 loose cartilaginous bodies, and in Billroth's case 35 were found. Billroth's case was carefully investigated by Rindfleisch, who came to the conclusion that it had originated, not as an ordinary exostosis from the epiphyseal cartilage, but as an enchondrosis of the cartilage of the joint which had pushed out a portion of the synovial membrane; this in time had become cut off from the joint cavity and had formed a separate sac over the tumor. Fehleisen, however, attributes these growths to a developmental error by which a group of cells, separate from the joint and lying dormant, suddenly springs into action and produces this special form of exostosis. He also points out that, although the ordinary exostosis which frequently grows from the epiphyseal cartilage at the ends of long bones, is often covered or partially inclosed in a *bursa mucosa*, these free cartilaginous bodies never occur in them. Moreover, he ascribes the origin of the free-floating cartilages to tufts of the synovial membrane, in which are formed minute islands of hyaline cartilage. These develop and are set free in the cavity of the synovial sac, both in large joints and in cases of *exostosis bursata*.

DR. FENWICK said that this case was a unique one as far as his experience went. He had in his possession a large exostosis of the lower end of the femur, which on section was found to be composed of cancellated structure. This had been obtained from the dissecting-room, and he was unable to say whether or not there was a bursa in connection with it, but it had been no doubt covered with cartilage.

DR. SHEPHERD said the case was a most interesting one from the light it threw on the formation of these floating cartilages in joints. He was convinced that the little buds of cartilaginous substance growing from the inside of the synovial membranes were the origin of the free cartilaginous bodies. They, no doubt, grew until they fell off from their own weight.

This form of exostosis he had never seen before; the ordinary exostosis is comparatively common and grows from the epiphyseal cartilage. They stop growing with the maturity of the individual. He had seen two well-marked cases within the last few weeks, one in a boy of sixteen which had reached a considerable size, and was continually growing. Billroth, in his *Clinical Surgery*, mentions a case of exostosis bursata olecrani.

DR. RODDICK exhibited a stone weighing fifteen drachms which he had removed from a man, aged fifty-two, by the

SUPRAPUBIC CYSTOTOMY.

Twelve years before he had removed a stone from the same man by the lateral operation. He remained well up to eighteen months ago, when symptoms of stone reappeared. He preferred the suprapubic operation on this occasion, because of the large size of the stone, and because he had formerly performed the lateral operation. He did not suture the bladder.

DR. FENWICK saw no reason why a previous lateral operation should contraindicate a second one, he had several times operated a second time with success; on one patient he had performed lateral lithotomy four times. He thought that entering the bladder by the perineum is the most natural way, and there is no danger of infiltration of urine as in the suprapubic. He had re-

moved very large stones by the lateral method by cutting both sides of the prostate.

DR. SHEPHERD said that in cases of suprapubic lithotomy he preferred suturing the bladder and putting a drain in the abdominal wound, so that if the bladder wound did not unite by first intention, there would be an outlet for the urine. The bladder should be drained by a catheter in the urethra.

DR. BELL said the bladder could not be drained thoroughly through the penis, and advocated a perineal drain.

Dr. RODDICK, in reply, said that the chief reason he had made use of the high operation, was the large size of the stone. With regard to suturing the bladder, most disastrous results had been reported by Thompson. He did not care to run the risk of urinary infiltration, a catheter introduced into the bladder through the penis would not effectually drain that viscus.

DR. SHEPHERD reported a case of

EXCISION OF THE RIGHT HALF OF THE LOWER JAW, WITH LIGATION OF THE INTERNAL JUGULAR VEIN,

for epithelioma which had recurred after removal from the lower lip eighteen months before. The patient was a man, aged fifty, and in good general health. There was some enlargement of the cervical glands. The jaw was removed without much difficulty and with little hemorrhage, but in dissecting out the infiltrated glands in the neck which were behind the vessels, the jugular vein was torn and had to be ligated. The patient made a good recovery, the temperature never rising above 100°. Dr. Shepherd mentioned that this was the fourth time he had tied the internal jugular vein in the course of operations on the neck, and that he had never seen any bad results follow.

DR. RUTTAN read a paper on a case of

POISONING BY BICHROMATE OF POTASSIUM.

The paper was based on a case of suicide by this salt. An Englishman, aged twenty-five, took about two ounces of bichromate of potassium in crystals, and was found in an outhouse vomiting, purging, and in great pain. When seen by the ambulance surgeon the vomiting had ceased. The patient was speechless and writhing on the floor, face contorted, and of a decidedly dusky hue, surface of the body cold, hands shrivelled and blue, respirations very rapid, mouth stained and filled with yellow fatty mucus. Vomited matter contained crystals of bichromate of potassium, but no blood. Abdomen retracted, and tender. At the hospital the patient was given a hypodermatic injection of ether, as the pulse was absent at the wrist. An attempt was made to introduce a stomach pump, but the patient died a few minutes after removal and within an hour of taking the fatal dose. When seen an hour after death, cyanosis was marked over face and neck, pupils were dilated.

The autopsy was made forty-eight hours after death by Dr. Lafleur. He reported cyanosis marked. Veins of pia mater were found distended and filled with dark chocolate-colored blood and without clot. Brain substance normal. The liver was of an intense purple hue and hyperæmic. Small intestine contained olive-green mucus with shreddy pieces of a yellow color. Mucous membrane slightly inflamed, but no loss of substance. Large intestine firmly contracted and contained but little mucus, stomach filled with mucus of a greenish-yellow color. No signs of severe corrosive action. Lungs crepitant, dark brown, and very frothy on section. Heart contained three ounces of dark chocolate-colored blood without clot. Muscles very red; seventy-two hours after death rigor mortis still very marked.

The blood was found to contain everywhere the neutral chromates of sodium and potassium; of the organs, the liver contained most of the poison, but it could be also detected in the tissues. The substance of the liver and kidneys could be stained a deep chrome yellow on suspending them in dilute acetate of lead for a few minutes. The stomach and small intestine contained, precipitated in the epithelium and in the mucus the insoluble green oxide of chromium. The blood was neutral. On spectroscopic examination it gave the absorption spectrum of methæmoglobin. (The absorption spectrum produced by the blood was shown to the Society.) Dr. Ruttan remarked on the rarity of these cases, and after comparing the symptoms and post-mortem appearances of this case with those recorded by others, concluded with some observations on the physiological actions of bichromates. As the result of a study of the recorded cases, and from a number of experiments made on rabbits and other animals by himself and Dr. Lafleur, he drew certain conclusions which are summarized as follows:

(*a*) The blood alterations resulting in the production of methæmoglobin, though hitherto unnoticed in these cases, occur whenever the dose is large or the poison rapidly absorbed.

(*b*) That neutral chromates do not produce methæmoglobin in the blood of living animals or in solutions of hæmoglobin. This action is peculiar to bichromates.

(*c*) Bichromates owe their rapid toxic action to this property which they have in common with several other powerful oxidizing agents.

(*d*) Bichromate of potassium may, like pyrogallic acid, potassium chlorate, nitrites, etc,, produce death without causing any symptoms of corrosive irritant action by profuse blood alteration alone. Cases were cited, notably one reported by Dr. Wilson, of Glasgow (*Medical Gazette*, vol. 33), and experiments quoted in proof of the similarity of action of bichromate to the methæmoglobin producers.

(*e*) If bichromate does not kill within a very few hours the symptoms and post-mortem appearances are indistinguishable from those produced by neutral chromates; hence the comparison of the physiological action of these two salts by writers on poisons. Usually, however, as in the case which formed the text of the paper, the salt acts both as a violent irritant and a methæmoglobin producer. In concluding his paper, the reader called attention to the dangerous ease with which this poison can be procured. The salt is used in many of the toy batteries sold to children and is never labelled poison.

DR. STUARD asked if Dr. Ruttan thought the ordinary symptoms produced by the nitrites are due to the production of methæmoglobin; if not, what are the symptoms produced by methæmoglobin?

DR. REED mentioned a case reported in the London *Lancet*, of a man who took four drachms of bichromate of potassium and died in fifty-five minutes. Cases of recovery have been reported after taking ten to fifteen grains. Symptoms were vomiting, pain and hemorrhage.

CORRESPONDENCE.

PROFESSIONAL PATRIOTISM.

To the Editor of The Medical News,

Sir: Having just read in The News a note from an officer of the army to *The Evening Post*, in which he asks permission "to place a flower on the grave of Dr. C. R. Agnew," who, in reply to him asking for his bill for professional services, said, "Captain, what I have done for you is only an expression of what I feel is due to every man who wears your uniform. You do not owe me anything,"—I beg leave to place a flower on the grave of another New York physician—the late Dr. Austin Flint—who, on the occasion of a professional visit to General Alvord, in Washington, in his last illness, in reply to him asking for his bill and urging the Doctor to accept a roll of greenbacks and adding, "You have been most kind and have done me good; you have been pleased to come to comfort me," replied tenderly, and I thought with some emotion, "General, I do not forget what you have done for us."

There are noble sentiments existing in the Faculty all around the world, but from the lips of professional men as eminent as Agnew and Flint, are more likely to attract the attention of the readers of your journal.

The writer recalls the words of the late Professor Gross who, in reply to one of his cloth asking for his bill, said with emphasis and a broad smile, "Dog don't eat dog," Doctor."

Basil Norris, M.D.

Vancouver Barracks, W. T., May 16, 1888

THE DANGER OF WASHING OUT THE PLEURAL CAVITY.

To the Editor of The Medical News,

Sir: Permit me to thank you heartily for your remarks (The Medical News, May 5, 1888, page 496) on "Epilepsie Pleurétique," a *new disease*, caused by the absurd custom of injecting disinfectants into the pleural cavity in all cases. I never injected but in one case, and in that I did so because the patient seemed to be running down, and I feared phthisis would supervene. I was convinced that a quantity of pus (*thickened*) was lying on the pleural cavity below the external opening, thus causing disease of the system generally. Accordingly, after I had allowed all the pus to drain away that could be made to come, I injected simple warm water, about a pint, and I was surprised and at the same time gratified to find that my diagnosis was thus confirmed. It came back *looking like pus*. I continued injecting about a pint several times, *most gently*, until the water returned almost as pure as it entered. I then desisted. The patient immediately began to improve and went steadily onward to a final cure.

This was a case evidently calling for an injection, but the custom of "washing out the pleural cavity" with simple water or antiseptic solutions in *all cases is a custom full of danger*. I am not surprised that the new disease of "Epilepsie Pleurétique" has been generated. To keep the external opening perfectly clean and let nature do her own work, has been my rule and successfully so far.

The profession of late has had one of its periodical frantic delusions. We now have one in regard to the use of "*antiseptic injections*" almost everywhere and at all operations. The consequence is that healthy women have been seriously injured and perhaps killed at times after healthy labors by injections into the womb, and all by the *folly of the profession*. We are likely to have more deaths and various diseases as the result of injections, unless we stop this course. Let us all follow your excellent advice, viz., emphasize the rule that *such injections* (pleural in this instance) "*should not be practised at all*," unless where actual gangrenous odor is found, or the patient, as in the case cited, is apparently running down from the retention of foul matter. I fully believe in your closing remark, viz., "to this rule there will be found few if any exceptions."

My experience since commencing the use of thoracentesis and thoracotomy is that once in 250 cases and 399 operations I have felt impelled to inject. I have never had a serious result to follow in any case. I do not think I should be able to say as much had I been *an intermeddler with injections in all cases* to kill the germs of disease *falsely* supposed to be ready to kill the patient unless strangled by our brave remedies.

Excuse this long letter, but I wanted to thank you for the editorial, and, as the mechanics say, "clinch your strong nail," so far as I could do so, by my experience.

Respectfully yours,

Henry B. Bowditch, M.D.

Boston, May 23, 1888.

NEWS ITEMS.

A Medical Congress in Spain.—The *Independencia Medica* states that a Medical Congress will be held at Barcelona from the 9th to the 15th of September, in connection with the Universal Exhibition which is shortly to be opened there. Among the subjects down for discussion we observe the following, which will suffice to show that our Spanish brethren are well abreast of the medicine and surgery of the day: Measures to be taken by the State for the prevention and cure of blindness, and for the improvement of the condition of the blind in Spain; present state of leprosy in Spain, and how to prevent it from spreading; indications for surgical interference in intestinal obstruction; identity or difference of scrofula and tubercle; localization of lesions in diseases of nervous centres; application of hypnotism and "suggestion" to the treatment of nervous affections; microorganisms in mineral waters, their influence on the chemical constitution and therapeutic effects thereof; laparotomy as an exploratory measure in penetrating wounds of the abdomen (more especially gunshot wounds); antiseptic midwifery; etiology and prophylaxis of cholera and yellow fever. A Pharmaceutical Congress will meet at the same time.—*British Medical Journal*, April 28, 1888.

A Universal Dictionary of Climatology.—The Imperial Observatory of Rio de Janeiro plans the publication of a universal dictionary of climatology For this purpose, the director, Mr. L. Cruls, has prepared and sent out a circular soliciting information from all official and private sources as to the climatic elements of places at which observations have been or are being carried on. A table is attached to the circular, in which the results of observations are to be inserted. The mean temperatures of the months of the year, the mean maxima and minima,

humidity, days and amount of precipitation, cloudiness, frequency of gales, days of frost, prevailing winds, the absolute maxima and minima, the mean annual barometric pressure, and the mean annual oscillation of the latter, are the points on which information is solicited.—*Science*, April 6, 1888.

An Epidemic of Milk Typhoid.—Dr. Brown, Health Officer of Carlisle, reports in the *Practitioner* for May, 1888, an epidemic of between thirty and forty cases of typhoid fever, of varying severity, in which the source of contagion was traced to milk. The cows which furnished the infectious fluid were suffering from a disease resembling typhoid in the human subject.

The Extirpation of Rabbits in Australia.—A telegram from Sydney states that the conference upon the means of dealing with the rabbit pest has resulted in the selection of an island where M. Pasteur's and other methods of extirpation will be thoroughly tried. The liability of other animals and birds to infection by the same means will also be tested.

Wood-wool Sheets for Accouchement.—These recently devised sheets are composed of a thick layer of wood-wool, inclosed in a gauze cover. They absorb discharges readily, deodorize all offensive matter, and are far more comfortable than rubber sheets. They are made at present in London.

Simple Tests for Poisonous Candies.—The *American Analyst* of March 15, 1888, writes that to test candy with respect to poisonous colors one needs a few ounces of alcohol, about an ounce of bleaching powder in solution (hypochloride of calcium), a little white woollen yarn, and a small bottle of aqua ammonia. See first whether the color can be dissolved out by alcohol; if it can, immerse the woollen yarn in the solution, and should the color adhere to the yarn and dye it, the probabilities are that it is a coal-tar color; if a red, it may contain arsenic. If the alcohol produces no effect, apply a drop of the bleaching powder solution to the surface of the sweetmeat; if the color fades out it is probably of vegetable origin and harmless.

"The poisonous color most frequently used is chrome yellow, a compound of chromium and lead. Its presence may be strongly suspected if the following tests have shown that none of the harmless yellows have been employed. The harmless yellows most commonly employed are turmeric, a vegetable color made from the root of a certain herb, fluorescein, a coal-tar yellow, and a number of vegetable yellows. Turmeric turns red when treated with ammonia. The other vegetable yellows fade when treated with the solution of bleaching powder. To detect fluorescein dissolve the candy in a tumbler of water and view the water in the sunlight against a black background. If fluorescein has been used, the green fluorescein will then be seen. When the tumbler is held between the eye and the light the color of the water appears yellow. If no results are obtained by any of these tests the suspected candy is probably colored by chrome yellow and is poisonous. Burnt umber, an iron-bearing earth frequently used to adulterate chocolate confections, may be detected in this way: Dissolve the confection in a glass of hot water; if a brown gritty residue remains undissolved on the bottom the presence of the umber is indicated."

CORRIGENDUM.

Page 582, 1st column, 21st line, *for* "five drachms three times daily," *read* "twenty grains every eight hours, or ten grains every four hours."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 22 TO MAY 28, 1888.

SUTHERLAND, CHARLES, *Colonel and Medical Director.*—To inspect the Medical Department at St. Francis Barracks, Florida, Fort Barrancas, Florida, Mount Vernon Barracks, Alabama, and Jackson Barracks, Louisiana.—*S. O 100, Division of the Atlantic*, May 19, 1888.

KIMBALL, J. P., *Major and Surgeon.*—Leave of absence extended two months.—*S. O. 117, A. G. O.*, May 21, 1888.

COWDREY, S. G., *Captain and Assistant Surgeon* —Ordered to accompany the troops of the Sixteenth Infantry from Fort Bliss, Texas, to Fort Douglas, Utah Territory, as Medical Officer. Will return to his station upon the completion of said duty.—*S O 54, Department of Texas*, May 19, 1888.

MCCREERY, GEORGE, *Captain and Assistant Surgeon.*—To accompany Seventh Cavalry from Fort Meade, Dakota Territory, to Fort Riley, Kansas. From Fort Riley he will return to Fort Meade.—*S. O. 42, Department of Dakota*, May 17, 1888.

ROBERTSON, R. L., *Lieutenant and Assistant Surgeon.*—Will accompany from Fort Keogh, Montana Territory, the Fifth Infantry to the Department of Texas; returning to his station on the completion of the duty.—*S. O. 43, Department of Dakota*, May 18, 1888.

EWING, C. B., *First Lieutenant and Assistant Surgeon.*—Will accompany the Twenty-second Infantry, as Medical Officer, to the Department of Dakota; returning to his station on the completion of the duty.—*S. O. 56, Department of Missouri*, May 17, 1888.

BANISTER, W. B., *First Lieutenant and Assistant Surgeon* —Granted leave of absence for two months, with permission to apply for an extension of twenty-seven days.—*S. O. 119, A. G. O.*, May 23, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING MAY 26, 1888.

DICKSON, S. H., *Passed Assistant Surgeon.*—Detached from the Receiving Ship "Dale," and ordered to Marine Barracks, Washington, D. C.

NASH, F. S., *Passed Assistant Surgeon.*—Ordered to the Receiving Ship "Dale," in addition to present duties.

RUTH, MELANCTHON L. *Surgeon.*—Granted one year's leave of absence from date.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE THREE WEEKS ENDING MAY 26, 1888.

WYMAN, WALTER, *Surgeon* —Leave of absence extended fourteen days, May 22, 1888.

MAGRUDER, G. M., *Assistant Surgeon.*—Relieved from duty at Marine Hospital, Chicago, Illinois, detailed as Medical Officer, Revenue Bark "Chase," during summer cruise, May 19, 1888.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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ORIGINAL ARTICLES.

EXPERIMENTAL STUDIES ON SOME POINTS CONNECTED WITH THE CAUSATION AND TREATMENT OF THE SUMMER DIARRHŒAS OF INFANCY.[1]

BY VICTOR C. VAUGHAN, M.D.,

PROFESSOR OF HYGIENE AND PHYSIOLOGICAL CHEMISTRY IN THE UNIVERSITY OF MICHIGAN.

IN order that this paper may be presented in the best form for discussion, I will state certain propositions which I conceive to be true, and after each statement will briefly give the reasons for my belief.

I. *The factor which is most frequently operative in the causation of the summer diarrhœas of children under two years of age is to be found in the food.*

It is unnecessary to take any time in discussing this proposition, since Dr. Seibert, in his paper read before this Section in February last, has presented the relation of the infantile diarrhœas to the weather in a much more practical and authoritative manner than I could. From reading the discussion which followed that paper, I think that we agree that the weather is a mediate and not a direct and exciting cause of these diseases. Heat is operative indirectly in at least two ways. *First*, a temperature of 60° F., or higher, is necessary in order that the germs of putrefaction may be disseminated to a sufficient extent to find their way into the food and drink, and into the air inhaled. Certainly such a degree of warmth is required for the fermentation of food before it is taken into the body, and there can be no doubt that the conditions which lead to the digestive disturbances which characterize these diseases have their beginnings often in the food before it is eaten. The putrefactive germs taken into the stomach frequently find the conditions for their growth improved. The temperature is the most suitable, the putrefactive products already formed are sufficient to overcome the normal antiseptic and germicide properties of the digestive juices, and the absence of oxygen favors the multiplication of the anaërobic forms of life, and to this class belong most of those microörganisms which induce disease. *Secondly*, the great heat of summer depresses the nerve-centres, and consequently lessens the amount, and may alter to some extent the quality of the secretions normal to the stomach and upper intestine. Under the influence of great heat the tissues lose their tone, and that physiological resistance which every healthy organ manifests toward toxic agents is impaired. These, I take it, are the principal offices that the heat of summer performs in increasing the infantile mortality. There is no reason for supposing that meteorological conditions have a mysterious influence in the production of these diseases. They are active only so far as they aid in the multiplication and distribution of the germs of putrefaction.

II. *The changes whereby harmful substances are formed in the food either before or after it is taken into the body are fermentative in character, or, in other words, are due to microörganisms.*

That deprivation of the mother's breast as the source of its food greatly increases the danger to the child's health and life there can be no doubt. Statistics collected in every part of the civilized world show that infantile mortality is much greater among those artificially fed than among those nursing from the breast of the mother. Why is this true? Why will not a child thrive as well when fed upon cow's milk as when it takes its nourishment directly from the breast of the mother? In answer to this question we may say that there are several reasons. There are chemical differences in the composition of the milk of woman and that of the cow. Especially is this true of the proteids. Woman's milk is much more easily digested. All of this is true, but the chemical differences in the composition of the two kinds of milk are not, I am sure, the most potent cause of the great frequency of diarrhœas among children artificially fed. This most potent cause is to be found in the fact that milk taken directly from the gland of a healthy animal, be it a woman or a cow, contains no germs of any kind whatever; while, on the other hand, cow's milk, as fed to children, always contains germs, and too frequently it contains those which interfere with the normal digestive processes, and lead to serious disease. I have taken milk directly from the lacteal ducts of the cow, and have shown that it contains no germs. The method of procedure is as follows: Some capillary glass tubes are hermetically sealed, then sterilized by heat. When ready to obtain the milk, the ends are again heated and broken off. Immediately one end of the tube is carried into the duct (the udders having been previously washed with soap and water, then with a solution of bichloride of mercury, and lastly with

[1] Read before the Pædiatric Section of the New York Academy of Medicine, May 23, 1888.

alcohol), when the tube fills with milk by capillarity. The ends are now quickly closed with sealing-wax. These tubes, kept for some days at the temperature of the body, contain no germs whatever, and consequently no decomposition occurs. Market milk, introduced into similar tubes and sealed, when kept at the proper temperature decomposes within a few hours.

Escherich[1] has made similar experiments with the milk of woman, and has found that the secretion of the mammary gland of the healthy mother contains absolutely no germs, as it comes from the ducts. In these experiments we have what is, to my mind at least, an explanation of the great prevalence of summer diarrhœas among infants fed artificially. But, says one, that explanation will not do, because sometimes, though rarely, I will admit, cholera infantum and other diarrhœas do occur among nursing infants. This is true, but these cases can be easily explained. In the first place, the healthy mother furnishes a milk free from germs, but the unhealthy mother does not always do so. Escherich found bacteria in milk taken with proper precautions from women suffering from various inflammatory diseases of the breast, endometritis, parametritis, peritonitis, septicæmia, etc. The milk from these women, kept in sterilized tubes, became strongly acid, coagulated, and was found to contain numerous microörganisms, one of which resembled very closely staphylococcus pyogenes aureus. Pure cultures of this germ injected into rabbits caused death, and, on post-mortem examination, the organism was found in the blood in the heart, and in the kidneys.

These experiments show that the milk of the mother is not always the best food for the child. But even in those cases in which the mother's milk is good there are many ways in which putrefactive and pathogenic germs may find their way into the alimentary canal of the child. Among the poor and negligent classes the exterior of the mother's breast is not always as clean as it might be. Children nurse from excoriated nipples, and sometimes from suppurating glands. Indeed, the danger to the child in taking food from diseased breasts has not been appreciated until recently by the profession. Just ten years ago I heard a very able specialist in diseases of children say that he did not know why a child's stomach could not digest pus as well as anything else.

Then there are yet many other ways in which microbes may be introduced into the child's stomach. The infant creeping about the floor must try the taste of everything in his reach, and in many tenement houses few of the articles which would fall within the grasp of the child are germ-free. You may be inclined to think that these are over-statements, but when we remember that Beumer has shown that tetanus neonatorum is, sometimes at least, due to germs growing upon the pedicle of the cord, and due to cutting of the cord with unclean instruments, or dressing it with dirty rags, we will not think it at all improbable that the child playing upon a dirty floor may feed occasionally upon microörganisms.

Lastly, there is always the possibility, and in many localities the probability, that harmful agents will be inhaled with the air, when they may find lodgement in the pharynx, and be swallowed with the food. In an epidemic of cholera infantum, which occurred in Leicester eight years ago, Johnstone found the same bacteria in the stools and in the emanations from the sewers. Indeed it is a matter of surprise, when we think of the many ways in which germs may find an introduction to the alimentary canal besides being taken directly with the food, that the mortality from the summer diarrhœas among those fed exclusively from the breast of the mother should be so small as it is shown to be by the figures of Hope, Ballard, and others. However, when the germs are contained in the food they are taken into the stomach in greater quantities than when taken in any other manner; besides they have already begun to grow in the food and their products, already formed when the food is swallowed, have more or less depressing effect upon the tissues.

That a few germs introduced into good milk may soon render it poisonous is shown by the following experiment: April 27, 1888, to a gallon of good milk I added half an ounce of poisonous milk, placed the whole in a bottle, closed with a glass stopper, and allowed it to stand at the ordinary temperature of the room for two days. Some of the milk, which had coagulated, was now filtered, the filtrate neutralized with sodium bicarbonate and extracted with ether. The residue left, after the spontaneous evaporation of the ether, was administered to a puppy and soon produced severe retching and vomiting. The gallon of fresh milk had been rendered poisonous by the activity of the microörganisms contained in the half ounce of milk which had previously begun to putrefy. I might detail to you a great number of similar experiments, but as the results have been the same in all, repetition is unnecessary and would only weary you.

On the other hand, milk which has been sterilized and kept in sterilized vessels does not undergo these changes, even when the temperature is kept at the point most favorable to putrefaction. Last December, my assistant, Mr. Novy, placed some sterilized milk in a sterilized Erlenmeyer flask, plugged the neck with sterilized cotton, and placed the flask in a Koch's vegetation trough, where it was kept most of the time at a temperature of 98° to 100° F., for three months, when an examination failed to reveal the presence of any poisonous substance.

[1] Fortschritte der Medicin, 1885.

Hofsten,[1] from a study of the records of the foundling hospital in Stockholm—which have been kept since 1812—as well as from his own experience in the same place, concludes that cholera infantum is a highly contagious disease. He is led to this belief because it has frequently been observed that the disease appears in one ward, spreads to all the inmates of that ward, and extends no further; or it attacks all those in a certain part of the ward, or is confined to those having the same nurse. To my mind, however, this does not prove that the disease is conveyed from one to another. The children in the one ward, or portion of a ward, or those of the one nurse have their food prepared, most likely, in the same way, cooked in the same vessel, brought in on the same trays, and served by the same nurses. If the nurse is not tidy, all under her care are alike endangered. The same is true if the ward is not clean, or is not properly ventilated. I think that Hofsten's facts show that the children living under the same conditions are affected by a poison emanating from a local cause, more conclusively than they support his belief that the germ is conveyed from the sick child to the well one through the air.

I have never seen anything that would lead me to suspect that the microörganisms of the summer diarrhœas are given off either from the lungs, or the skin of the sick. On the other hand, I have supposed that the germs are excreted by the bowels and probably by the kidneys, and that being suspended in the urine and moistened by the watery evacuations, they would not be disseminated through the air; but if the stools and urine should be thrown out upon the ground and the bacteria should be dried, they might then be disseminated. The reason for suspecting that the microörganism is excreted by the kidney as well as the bowels, is the frequency with which albuminuria accompanies these diarrhœas. It certainly can do no harm to have the stools and urine of patients with these diseases disinfected.

If it be true, as is held by Taube[2] and Escherich,[3] that in the young child stomachic digestion is of less importance than intestinal digestion, and that the stomach is more a receptacle into which the milk is received for coagulation than a digestive organ, then we have the most favorable conditions for the growth and activity of the bacteria which are introduced with the food. These experimenters claim that the younger the child the less active is digestion in the stomach, and that in this organ the milk is coagulated and is passed through the pylorus undigested. Hammarsten,[4] some years ago, showed that this is largely the case in the dog and rabbit. Hofmeister and Tappeiner[1] find that the stomach does not absorb soluble substances as rapidly as does the mucous membrane of the small intestine; and Zweifel has stated, and in this he is supported by Hammarsten, that the proteolytic activity of the pancreatic juice is relatively well developed in the newly born. Furthermore, it has been demonstrated by Eichhorst[2] that the intestinal mucous membrane will absorb unchanged casein. The absorption of fats is largely dependent upon the bile, and the teaching of Frerichs that the milk sugar is absorbed from the stomach, is now known to be an error. This constituent of milk is digested, as has been shown by Dastre,[3] by a ferment found in the mucus of the small intestine, and is not affected by the gastric juice. These experiments convince us that the digestion of milk is nearly, if not quite, altogether accomplished in the small intestine. These teachings of physiologists are confirmed by clinical experience with cases of intestinal indigestion in adults, for in these cases we invariably find that milk aggravates the trouble.

With these facts before us, and knowing that cow's milk begins to ferment from the very moment when it is drawn from the udder; that it is often kept for hours in unclean vessels, in foul rooms, and at a high temperature, after which it is poured, we may say, often to overflowing, into the digestive reservoir, the stomach; bearing in mind these facts, I say, Is it any longer a matter of wonder that thousands of children die every summer in this city from cholera infantum and kindred diseases?

III. *The microörganisms which produce the catarrhal or mucous diarrhœas of infancy in summer may be, and probably are, only putrefactive in character, but those which cause the choleriform or serous diarrhœa, true cholera infantum, are more than putrefactive; they are pathogenic; they produce a definite chemical poison, the absorption of which is followed by the symptoms of the disease.*

While I believe that all the summer diarrhœas of infants are bacterial in origin, I do not believe that the same bacterium is present in all. The more I observe these diseases clinically, the more I study the subject experimentally in the laboratory, the more thoroughly do I disbelieve in their unity. In the choleriform diarrhœa the symptoms come on suddenly and violently. It is true that this affection may occur as an intercurrent disease in the course of an ordinary catarrhal diarrhœa, it may be true that it is more likely to occur under these conditions than in a child previously healthy; but when it does appear in such a case the symptoms change. You are all perfectly well acquainted with these symptoms, and Dr. Smith has described them graphically and accurately. This

[1] Cholera infatum på allmänna barnhuset i Stockholm, 1887.
[2] Schmidt's Jahrbücher, 1887.
[3] Jahrbuch für Kinderheilkunde, 1887.
[4] Beiträge zur Anatomie und Physiologie, 1875.

[1] Zeitschrift für Biologie, Bd. 16.
[2] Pflüger's Archiv, Bd. 4, 1871. [3] Comptes Rendu, t. 96, 1883.

disease differs from the catarrhal diarrhœas of infancy in symptomatology and in pathology, and there are reasons for the belief that there is also a difference in etiology, and if we accept the germ theory for these diseases we must believe either that the germs causing them are different, or that the same microorganism will produce in one child a well-marked train of symptoms and characteristic anatomical alterations, and in another wholly different effects and lesions. The poison of choleriform diarrhœa acts immediately on the nervous system, most probably having its chief effect upon the sympathetic nervous system; the most pronounced early effect of the poison of catarrhal diarrhœa is as a local irritant.

It now devolves upon the bacteriologist to isolate the microörganisms present in the various forms of summer diarrhœa, and upon the chemist to study the putrefactive products of these germs as they are grown in various media. There has already been considerable activity in this line of work among bacteriologists, but until the appearance of the monograph of Escherich,[1] a little more than a year ago, we knew nothing positively or accurately concerning the normal bacterial vegetation in the intestines and stools of infants, nor of the effects of alterations in the food of the child upon these growths. Escherich has done his work so thoroughly that it will serve as a basis from which the pathological organisms may be studied, and we hope for some good results in the near future.

Hayem,[2] and his pupil Lasage, claim to have discovered and isolated the microörganism of "green diarrhœa." They also state that they have found in lactic acid a sure germicide in the treatment of this form of summer diarrhœa. However, it has not yet been demonstrated that the "bacillus of green diarrhœa," as the germ is called, has any causal relation to the disease, and the statement that the administration of seven or eight grains of lactic acid per day will cure a disease which is characterized by the great extent to which the lactic acid fermentation goes on in the intestine will require repeated corroboration before it is generally credited.

IV. *The bacteria which produce these diseases prove harmful by splitting up complex molecules and forming chemical poisons.*

The answer to the question, How do germs cause disease? has now, thanks to the labors of Selmi, Brieger, Hoffa, and others, been satisfactorily answered. They do so by elaborating chemical poisons, some of which are powerful in action, are rapidly absorbed, and manifest their effects upon the central nervous system, as in Asiatic cholera, and, as I believe, in the choleriform diarrhœa of infancy; others are less powerful and act primarily as local irritants, inflaming the tissues and leading to necrotic changes, as is most likely the case in the catarrhal diarrhœas of infancy. We now expect to find for each infectious disease its specific microörganism, which produces its own characteristic ptomaine. The ptomaines of tetanus, anthrax, and typhoid fever have been isolated, and I think that in tyrotoxicon we have the chemical poison or ptomaine of genuine cholera infantum. This substance is rapidly formed in milk when the germ is present and the conditions are favorable for its growth. Newton and Wallace, in investigating the outbreak of milk-poisoning at Long Branch in August, 1886, found that the milk drawn from the cows at noon became sufficiently poisonous within six hours to affect seriously those who partook of it; they also found that the toxic agent in the milk was tyrotoxicon. The microorganism which produces this ptomaine has not yet been isolated, but we know that the production of this poison is due to the action of a ferment, because a small quantity of poisonous cheese, cream, or milk added to good milk will soon render the whole poisonous, if it be kept at the proper temperature. While this germ has not been identified, we know something of its nature and growth. It does not develop below 60° F., and it is anaërobic.

The symptoms produced by this poison are very similar, if not identical with those observed in the choleriform diarrhœa of children. There is a sensation of constriction or burning in the throat, retching, vomiting, and frequent watery discharges, the first two or three of which may contain fecal matter, but the subsequent ones are serous, without fecal odor, and alkaline in reaction. When too large doses are not given and collapse does not come on speedily, there may be an elevation of temperature, but when the heart becomes very weak, the temperature may be subnormal. With very large doses, one grain or more, full-grown cats may be killed within thirty minutes. In these cases there is the most violent retching, but neither vomiting nor stool. After death the lungs are found congested, the circular fibres of the intestine are in places tightly contracted, and the stomach is generally free from any redness. By the continued administration of very small doses the vomiting and diarrhœa are kept up; the animal is unable to retain any food, loses flesh and dies from exhaustion, usually immediately after a severe attack of retching or vomiting.

I deem it unnecessary to detail here experiments illustrating the effects of this poison, as I have done this elsewhere. Moreover, this ptomaine has been obtained, and its effects described, by Newton, Wallace, Schearer, Wolff, Firth, and others.

In a condensed form, the following are the reasons for believing that tyrotoxicon is the exciting cause, in at least some instances, of choleriform diarrhœa in infants.

(*a*) This ptomaine results from the putrefaction

[1] Darmbakterien, 1886. [2] France Médicale, 59, 712.

or bacterial fermentation of milk. The disease is confined (with very few exceptions, which are easily explained) to children fed upon cow's milk, and is most prevalent among those classes which use milk most likely to be subjected to conditions which favor putrefactive decomposition.

[I would not have it understood from the above that tyrotoxicon is formed whenever milk ferments. It certainly is not produced in the ordinary souring of milk by the lactic acid ferment, as I have repeatedly shown by experiment.]

(*b*) Tyrotoxicon has been found in the milk given to a child immediately before the appearance of the symptoms of choleriform diarrhœa.[1]

My colleague, Dr. C. George, has reported to me an interesting case, which I must mention in brief here. He was called in great haste, on a very hot day, to see twins a few months old, who were reported as vomiting and purging for some hours. On his arrival he found one dead and the other suffering from symptoms which he immediately pronounced cholera infantum. He called for the milk upon which the children had been fed, and not liking the taste of it, he told the mother it had not been properly kept. She resented this, and in order to show that the milk was good, she drank a full tumbler of it. In a short time she also was vomiting and purging.

(*c*) The symptoms of the disease increase if the administration of milk is continued, and abate when milk is withdrawn from the food.

For the demonstration of the truth of this statement, Drs. Jacobi, Holt, and others, have given abundant testimony.

(*d*) The symptoms induced by the poison and those observed in the disease are identical.

(*e*) The post-mortem appearances are identical in the two cases.

Tyrotoxicon may be produced either outside or inside the body. The germ taken into the stomach of the child with milk finds present the two conditions which we know to be necessary to its growth, a proper temperature and the absence of free oxygen. That some of the anaërobic germs which occasion putrefactive changes in milk, do grow and multiply in the stomach, is demonstrated by the not infrequent presence of the butyric acid ferment in the vomited matters in certain cases of indigestion.

While I am thoroughly convinced that the catarrhal diarrhœas of infancy are bacterial in their origin, and that these bacteria produce chemical poisons or irritants, I feel certain that both the bacteria and ptomaines are different from those causing the choleriform diarrhœa. In the needed investigations concerning the causation of these diseases, there is a rich field of promise for both the bacteriologist and the chemist.

[1] THE MEDICAL NEWS, vol. l. p. 675.

V. *The most efficient preventive treatment of the summer diarrhœas will consist in giving more attention to the food, methods of feeding, and to the sanitary surroundings of children during the first two years of their lives.*

I do not propose at this time to go into an exhaustive discussion of infant feeding, but there are a few points inseparably connected with the matter in hand which must be touched upon at least. I cannot agree with Wegscheider,[1] who holds that the proteids of woman's milk are fit for absorption without the action of any digestive juice, but there can be no denial of the fact, of which we have so many proofs, both physiological and clinical, that the infant digests the milk of the mother or healthy wet-nurse more readily than it does cow's milk. Nor must the large amount of nitrogenous substances in the stools of breast-fed children mislead us into the belief that these are altogether portions of undigested milk. The nitrogen-containing substances in the normal stools consist largely of the secretions, or rather excretions, from the intestine. With the fats it is otherwise. It must be acknowledged that woman's milk usually contains more fat than can be utilized by the child. The amount of fat in the normal stool varies from eight or nine to more than fifty per cent. of the dry substance. Unchanged milk-sugar does not appear in the normal feces of breast-fed infants. This does not necessarily mean, however, that all of this food stuff has been absorbed, for the products of the decomposition of milk-sugar do occur in the excretions from the bowels.

Escherich has shown that a healthy child of ten weeks of age will take about one quart of undiluted cow's milk per day, while an equally well-nourished child of the same age, taking its nourishment from the breast, receives in the same time about 774 grams of milk. The first child receives 34.64 grams of proteid, and the second only 12.93 grams of the same food stuff. We thus see that the proteolytic activity of the digestive organs of the artificially fed child must be severely taxed, or a large portion of the proteids must wholly escape digestion. That no large amount of the proteid does escape change of some kind, is shown by the experiments of Forster and Uffelmann, which demonstrate that in the normal stool of the child fed upon cow's milk, only about one and five-tenths per cent. of the casein appears unchanged. This also does not show that all the casein is digested. How much of it is altered by the agency of bacteria we do not know.

Children fed upon cow's milk are more likely to be over-fed than those nursing from the breast, for two reasons. In the first place, the supply is not so easily exhausted; and, in the second place, the child obtains the food more easily, indeed, the milk is

[1] Die Normal Verdauung der Saunglings, 1876.

often poured into the child's stomach *ad nauseam*. To these might be added the fact that the child is often supplied with the nursing bottle when the busy mother would not stop her work to nurse it herself. Still, again, the system needs about so much water, and too many mothers and nurses forget that a little water might be relished at times even by a babe. This overloading of the child's stomach with proteids greatly increases the chances of digestive disturbances arising from putrefaction. Granting that all of the proteid, which is altered in the alimentary canal, is really digested and absorbed, still the excess is not needed, cannot be utilized by assimilation, and must do harm. Some one has said that "we live upon what we eat;" Meinert, I believe, has changed this, and said "we live upon what we digest;" I should beg to make another alteration, and say, "we live upon what we assimilate." Overfeeding, even when followed by complete digestion, can do only harm.

But supposing that the excess of proteids in the cow's milk is avoided by dilution with water, there still remain the differences in the chemical composition of the two kinds of milk, and the greater probability that the cow's milk is contaminated with dangerous bacteria.

Simon[1] found that the mucous membrane of the stomach of a child, which died soon after birth, readily coagulated woman's milk, but was without effect upon cow's milk. The same investigator found that after complete desiccation the casein of woman's milk is freely soluble in water. Bouchardat, Quevenne,[2] Meggenhofen,[3] and others, state that the casein of woman's milk forms soluble compounds with small amounts of acids, while the casein of cow's milk is coagulated by the same. Radenhausen[4] claims that there is no real casein in the milk of woman, and that the proteids exist as albumen, protalbumen, and peptone. Struve[5] finds in woman's milk about one-sixth as much insoluble casein, twice as much soluble casein, nearly three times as much albumen, and one-third more peptone than in cow's milk. Other chemists of equal reputation might be quoted, but while there are many minor differences, all agree substantially that the proteids of the milk of woman are more easily digested than are those of the milk of the cow.

I can see no reason why the casein of cow's milk should not be partially digested, partly converted into the soluble form at least, when used in the feeding of infants, especially with those of feeble digestion. However, I would object to complete artificial digestion for several reasons. In the first place the digestive organs, like all other organs of the body, would be enfeebled if relieved of their physiological duties. In the second place the too rapid absorption of peptones is harmful. Albertoni, of Genoa, and Schmidt-Mulheim, have independently shown that if peptones be injected directly into the blood, they are poisonous. Normally, it is a function of the liver to arrest and alter the products of proteid digestion in the stomach and intestine, but if a great quantity of ready-made peptones be poured into the stomach, they will be absorbed so rapidly that the liver may fail to perform this function fully. The feeding of completely digested food may be admissible for a time, in rare cases, where there is great debility, but its long continuance is irrational and unscientific. Certainly it is not the thing to do for healthy children. Again, Brieger has shown that artificial digestion of proteids is accompanied by the production of a poisonous base, which he has named peptotoxin. Whether this substance is formed in normal digestion or not, we cannot say. If so, it must be altered or eliminated by the liver.

As to the addition of some carbohydrate to cow's milk, I agree with Dr. Smith, that dextrin is the best form. I will not take the time to give my reasons for this at present.

In order to protect the child, as far as possible, from the harmful microörganisms which may be present in cow's milk, the greatest attention should be given to the care of this food. I have elsewhere given some rules for the handling of milk, and I have not seen any reason for changing them.[1]

As to the sanitary surroundings of the child in their influence in the production of summer diarrhœas, it is unneccessary for me to say anything to you. I only mention this point to show that I do not ignore it, and would not omit from the list of things to be done in the prevention of these diseases improvement in the sanitary conditions of dwellings and their surroundings.

I will now proceed to my last proposition.

VI. *In the curative treatment of the summer diarrhœas of infancy, the destruction of the bacteria which are causing the abnormal fermentation is a necessity.*

The truth of this statement will be admitted, I think by all, and a detailed discussion of it here would be out of place. I will only refer to the methods of destroying these germs in brief.

One of the surest methods of destroying the life of any plant or animal is to withdraw all the sources of food supply. Germs in the intestine of the child may be destroyed in this way. If they feed upon the constituents of milk, stop the administration of milk. Escherich[2] has shown by actual demonstra-

[1] Die Frauenmilch nach ihrem chemischen und physiologischen, Verhalten, Berlin, 1838.

[2] Du lait, Paris, 1857.

[3] Diss. inaug. sistens indigationen lactis muliebris chemicam, Frankfort, 1826.

[4] Zeitschrift für physiologische chemie, B. 5, S. 13.

[5] Journal für practische chemie, B. 27, S. 249.

[1] THE MEDICAL NEWS, vol. 50, p. 674. [2] Darmbakterien.

tion, that the bacteria normally present in the stools and intestines of the young fed upon milk disappear wholly and speedily when the administration of milk is stopped and a meat diet is substituted. A radical change in diet is one of the most certain methods of changing the nature of the bacteria which cause certain digestive disturbances. The struggle for existence is probably not without its effect even upon microörganisms. Some thrive abundantly in a given medium—indeed, they multiply so rapidly in many instances that they crowd other germs out of existence—but when the medium in which they exist is changed they find that the new conditions of life influence their rate of growth and reproduction, and if these new conditions are unfavorable to the old resident, he is displaced by an invader. Again, although the old germ may grow and multiply in the new medium, it may lose its virulence, it may no longer be able to elaborate the chemical poison or ptomaine, the production of which characterized bacterial activity in the first medium. Thus, Brieger has shown that the typhoid bacillus will grow and multiply, but will produce no typhotoxine, in solutions of peptone, while in beef-tea preparations it does produce this poison. As I have already stated, a small quantity of milk containing tyrotoxicon added to any quantity of good milk will soon render the whole poisonous; but, when added to beef-tea, or solution of egg-albumen, the amount of the chemical poison is not increased.

This I have found to be invariably the case in a large number of experiments which I have made, and it indicates either that the meat and albumen preparations will not support the life of the tyrotoxicon-producing germ, or that in these media the conditions of the life of the germ are so altered that it no longer produces a chemical poison.

We have labored to show that the bacteria which cause the summer diarrhœas of infancy find in milk the most favorable conditions for their growth, activity, and reproduction, therefore, when we wish to destroy these bacteria we certainly shall not continue to feed them upon milk. The prompt and complete withdrawal of all milk, of every kind of milk, even that of the mother, in the treatment of the summer diarrhœas of infancy, has been advocated for many years by eminent clinical teachers, and now the chemist and bacteriologist have shown that this recommendation is a good one, and have given a scientific explanation of it.

The withdrawal of all milk food should be the first step taken in the treatment of the summer diarrhœas of infancy, then other means may also be resorted to in order to hasten the destruction of the agents of the harmful fermentation. Epstein[1] stops the use of milk, washes out the stomach, sometimes employing an antiseptic wash, gives solutions of albumen as food and germicides as medicine. Holt[1] and others recommend cleansing the alimentary canal with a free dose of castor oil in the early stages. Washing out the large intestine is, also, sometimes resorted to.

I have made a few experiments in order to ascertain the value of certain germicides in the destruction of the germ which generates tyrotoxicon. Two ounce bottles were filled with milk, milk and ferment, and milk, ferment and some germicide, closed with glass stoppers, and kept in an air-bath at the temperature of the body for twenty-four hours, and the contents of the bottles were then tested for tyrotoxicon with the following results:

No. 1. Pure milk; no poison.

No. 2. Pure milk; no poison.

No. 3. Milk and ferment; poison in quantity.

No. 4. Milk and ferment; poison in quantity.

No. 5. Milk and ferment and one hundredth grain mercuric chloride; poison present.

No. 6. Same as No. 5.

No. 7. Milk and ferment and one twenty-fifth grain of mercuric chloride; no trace of the poison.

No. 8. Same as No. 7.

No. 9. Milk, ferment, and five grains of naphthaline; poison present in as great quantity apparently as in the bottles containing milk and ferment only.

No. 10. Same as No. 9.

No. 11. Milk, ferment, and five grains of sodium salicylate; poison not present.

No. 12. Same as No. 11.

No. 13. Milk, ferment, and five grains of resorcin; poison not present.

No. 14. Same as No. 13.

It seems from these experiments that 1 part of mercuric chloride to 24,000 parts of milk is sufficient to prevent the activity of the tyrotoxicon-producing germ, while 1 part of naphthaline to about 200 parts of milk is wholly without effect. This is not the first time that naphthaline has been found wanting. Seitz[2] found it without effect on the typhoid bacillus.

The sodium salicylate and resorcin were efficient in proportion of 1 part to about 200. In less quantities they were not, as was shown by some further experiments. There has been some dispute about the germicide properties of combined salicylic acid, Bucholtz standing almost alone in claiming for it such properties. He found sodium salicylate, when present to the extent of 0.4 per cent., preventing the development of bacteria; and it will be seen that in my experiments it was present to the extent of 0.5 per cent. However, I cannot be sure that it acted as sodium salicylate; it may have been partially or

[1] Jahrbuch für Kinderheilkunde, 1887.

[1] New York Medical Journal, 1887.

[2] Die Ætiologische Bedeutung des Typhusbacillus, 1887.

even wholly decomposed by the traces of free lactic acid present.

The germicide value of resorcin is generally understood. Ehrig[1] has used a 1.5 per cent. solution of this substance in washing out the stomach in cholera infantum, but in two cases in which a little of the solution was left in the stomach, serious symptoms, accompanied by bloody urine, followed.

GUNSHOT WOUND OF THE ABDOMEN.

PERFORATION DIAGNOSTICATED BY RECTAL INSUFFLATION OF HYDROGEN GAS; LAPAROTOMY; DEATH FROM SEPTIC PERITONITIS.

By WILLIAM MACKIE, M.A., M.D.,
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Viewed from a diagnostic standpoint, the following case is of the greatest interest. Occurring in the human subject, it confirms the infallibility of rectal insufflation of hydrogen gas as a diagnostic measure for the detection of visceral injuries of the gastro-intestinal canal in penetrating wounds of the abdomen. This was first proposed by Professor Senn (with whom I have been associated in his experimental researches), and demonstrated by him in animals before the Surgical Section of the American Medical Association, at the meeting held in Cincinnati, in May, 1888.

C. D., colored, aged twenty-seven, admitted into Milwaukee Hospital, May 11, 1888, at 11 P. M., for pistolshot (38 calibre) wound of abdomen, inflicted two hours previously. The symptoms present were: copious vomiting prior to admission, vomit tinged with blood, excruciating pain referred to umbilical region, abdomen flat on percussion from level of umbilicus to pubes; abdominal wall rigid, liver dulness normal, shock not marked. The wound of entrance was situated two inches to the left of the linea alba, and one inch below the costal arch; that of exit, in the left lumbar region close to the spine, and one inch above the iliac crest; general direction of bullet from above, downward and backward. The bullet had been removed from underneath the skin before he was brought into the hospital.

The patient was etherized, and rectal insufflation effected in the following manner: A four-gallon rubber bag, filled with hydrogen gas, was connected by rubber tubing with the long glass tube of an extemporized chemical wash-bottle, half filled with water. To the short glass tube, passing through the cork only, was attached, by rubber tubing, the rectal nozzle of an enema syringe. This bottle was introduced so that the rapidity of inflation could be judged of by the bubbling of the gas through the water. When the rectal nozzle had been introduced, slow, steady, and continuous pressure was made on the rubber bag. Under very slight pressure the gas commenced to bubble through the water. As inflation progressed, the abdomen, previously flat on percussion from the umbilicus to pubes, became resonant, and the area of liver dulness diminished from below upward. The inflation was continued until the abdomen became uniformly distended and tympanitic throughout. Still no gas escaped through the wound of entrance, although kept at the highest level. On firmly compressing the abdomen, there occurred an intermittent escape of gas mixed with blood through the wound of entrance. To demonstrate the presence of hydrogen by ignition of the escaping gas, matches were employed. These proved very unsatisfactory, for a burning match never once happened to be directly over the wound of entrance when the gas was escaping. The taper as used by Senn in his experiments had, in the hurry of preparation, been overlooked. The escape of gas from the wound of entrance positively proved that the gastro-intestinal canal had been injured, so that further attempts at ignition were superfluous.

Laparotomy by median incision.—When the peritoneal cavity was opened, the omentum immediately bulged into the incision, and, through its translucent structure, it was distinctly seen that it was lifted from the subjacent intestines by the gas which had escaped through the perforations into the peritoneal cavity. From a puncture made in it gas escaped; still the abdomen remained uniformly distended. As the incision was enlarged the transverse colon, greatly distended, escaped; followed by the small intestine, uniformly distended. Examination showed that the intra-abdominal hemorrhage was profuse, originating from the superior mesenteric vein at the root of the mesentery. This was arrested by ligation of the distal and proximal ends.

The distended condition of the colon and small intestine, coupled with the position of wound of entrance, indicated that the perforations must be situated high up; therefore the search was commenced at the stomach. The stomach was empty, and in it were found two perforations, one on the anterior and the other on the posterior surface near the cardiac end, and close to the omental attachment. The duodenum was free from gas, and, at the junction of the duodenum and jejunum, two perforations on the lateral aspect of the intestine were found. For some distance beyond these the small intestine did not contain gas; but as no perforations were found before the distended intestine was reached, I concluded that no more perforations could exist. Examination of the small intestine, while replacing, confirmed this belief. These perforations were closed by a continuous Lembert silk suture. There was no extravasation of stomach or intestinal contents. The other injuries found were one perforation of the transverse meso-colon and two of the mesentery. Patient died of septic peritonitis thirty-six hours after the receipt of the injury.

Post-mortem six hours after death.—(Prof. Senn present.) The sutures were removed from the abdominal wound which had not united, and rectal insufflation of hydrogen gas made to test the integrity of the gastro-intestinal canal. Very slight pressure was required to overcome the ileo-cæcal valve, for compression of the rubber storage-bag had hardly been commenced when the small intestine,

[1] Jahrbuch für Kinderheilkunde, 1887.

previously flaccid, began to distend and escape through the abdominal incision. Its further escape being prevented, the gas was forced through the entire gastro-intestinal canal. The abdomen was now opened by the usual post-mortem incision. The peritoneal cavity presented the appearances of diffuse peritonitis, most marked in the region of the stomach. The sutured perforations, securely closed, were found. With the intestines *in situ*, alternate compression of the cæcum and ileum produced a to-and-fro movement of the gas through the ileo-cæcal opening. This was in every instance accompanied by a distinctly audible blowing, gurgling sound, such as Prof. Senn has described as present on auscultating the ileo-cæcal region in his experiments on the human subject. Further examination revealed a slight, contused and lacerated bullet wound in the tail of the pancreas, and hemorrhagic infiltration of the retro-peritoneal connective tissue below the kidney, and corresponding to the wound in the posterior abdominal wall. About one pint of sero-sanguinolent fluid was found in the peritoneal cavity.

Remarks. — It was impossible to diagnosticate, from the symptoms, perforation of the gastro-intestinal canal. The position of the wound of entrance and the character of the vomit were presumptive of injury to the stomach. The normal area of liver dulness was opposed to the presence of intestinal gas in the peritoneal cavity. That no gas escaped at the time of injury into the peritoneal cavity, is to be inferred from the diminution of the area of liver dulness following insufflation, and the escape of gas on puncture of the omentum. The general direction of the bullet, and the position of the wound of exit pointed to injury of the descending colon or kidney; still both were intact. The symptoms of intra-abdominal hemorrhage were not so marked as to justify a laparotomy.

The escape of gas from the wound of entrance, after rectal insufflation of hydrogen gas, afforded positive evidence of perforation existing somewhere in the gastro-intestinal canal, and on this evidence alone was laparotomy performed. The perforations were so situated as to put this diagnostic measure to the severest test. It was found reliable, and further experience will prove that it is as infallible in the human subject as Senn has found it in animals. It never once failed.

In conclusion, we come to the medico-legal aspect of this case. The man who did the shooting has been committed for trial. The symptoms present were only presumptive of the existence of perforation, until rectal insufflation was made. Had an exploratory laparotomy been performed with the above fatal result, and no intra-abdominal lesions, sufficient to warrant such a grave operation, been found, the position of the surgeon would have been very embarrassing. The defense might affirm that the surgeon ought to be held responsible for the patient's death, and not the defendant. Naturally, this would deter one from operating; but if the surgeon can demonstrate by rectal insufflation of hydrogen gas, the presence of diffuse tympanites due to escape of gas through a perforation into the peritoneal cavity, even without the escape of gas through the external wound, he may rest assured that perforation exists somewhere in the gastro-intestinal canal, and he can then safely proceed to the necessary operative treatment without incurring any medico-legal responsibility.

ON THE USE OF HYDROGEN GAS TO DETERMINE THE SITE OF A FECAL FISTULA—WHETHER IN THE LARGE OR SMALL INTESTINE.

By WILLIAM J. TAYLOR, M.D.,
of Philadelphia.

In a case at present in the surgical ward of St. Agnes's Hospital, in the service of Dr. W. W. Keen, Dr. Sprissler, one of the resident physicians, suggested the use of hydrogen gas, as recommended by Dr. Senn in The Medical News of May 16, 1888, in order to determine the site of a perforation of the bowel, whether in the large or small intestine. A brief account of the case will, I trust, prove of some interest to the profession in connection with this novel subject.

The patient had a fecal fistula on the left side of the abdomen. The question as to whether a lateral or a median incision should be made depended upon whether the proximal opening was in the large or the small intestine. The distal opening threw no light upon this point. In order to determine the question, inflation of the bowel by hydrogen gas was used by Dr. Keen, since if the gas escaped by the fecal fistula before any gurgling occurred in the ileo-cæcal valve, it would prove that the opening was in the large intestine; if, however, the gurgling sound was heard as the gas passed through the ileo-cæcal valve, prior to its escape from the fistulous opening, it would be proof that the opening was in the small intestine.

Accordingly, a gallon of hydrogen was procured in a rubber bag, to which was attached the nozzle of an ordinary Davidson syringe. On inserting this into the rectum, and with a moderate pressure by the hand on the bag, in less than half a minute, and after the use of not over one-third of the amount of hydrogen, and before any gurgling was heard at the ileo-cæcal valve, gas was seen to bubble out from the fecal opening, and on bringing a lighted candle near it, it took fire. The mode of its taking fire was worthy of notice. The day was clear, and the sun shone brightly, so that the flame was scarcely visible, but the gas took fire with a slight explosive snap, which was perfectly characteristic and easily perceived.

A small exploratory opening was then made in the belly-wall only, and the fecal fistula was found

to arise from a carcinoma in the large bowel, and as the disease had progressed, evidently, far beyond operative relief it was considered advisable to desist from further operation.

DIPHTHERITIC PARALYSIS.[1]

By W. H. THOMSON, M.D.,

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Owing to its practical importance, I beg leave, before entering on the consideration of diphtheritic paralysis, briefly to refer to a subject which is naturally suggested by it, namely, the post-latent stage, as I would term it, of the acute infectious diseases. To the antecedent latent stage of these diseases, which intervenes between the reception of the infection into the body and the first manifestations of its activity, we have the term incubation applied. Upon this follows the stage of development which is described in our text-books in its symptoms and course, until the clinical picture ends with what is called the termination in recovery. That termination is taken for granted to coincide with the subsidence and disappearance of all the characteristic external signs of the disease itself, and with the restoration of the different bodily functions which have been disordered to their normal state. That another latent stage of the disease should follow upon the stage of development, specific to each disease in its characters, of equally specific processes and duration, is hardly ever suggested, and yet I have long thought that this is the case in each of the acute infectious diseases, so that a post-latent period must not only be predicated of them as necessary to their real course and always preceding true final recovery, but that in each the effects of the specific latent processes are often of as much practical importance so far as providing for them in the treatment of the patient is concerned, as any of the outward manifestations of the period of development itself. If this be true, then when certain disorders arise during the so-called convalescence of the patient, instead of regarding them as sequelæ, and, therefore, of a more or less accidental character, they should be regarded as much parts of the original disease as the eruption of an exanthem is so regarded and described. Thus we ought not to call scarlatinous nephritis a sequel of scarlet fever, for we have no right to forget that the child still has scarlatina and the kidneys are yet to be heard from, though the patient may have returned to play for two weeks after his apparently mild and temporary first illness.

The frequent severity also of many of these so-called sequelæ in comparison with the light symptoms of the stage of development, ought to suggest the surmise that instead of having only traces or after-effects in hand we have the original complaint itself yet in all its power, and that in these cases its most active workings are during the third, and not during the second period of the natural history of the disease. The seasonal character of many epidemics in this respect, such as the greater liability to nephritis in scarlatina in some years than in others, is but another confirmation that nephritis is as much a part of the disease as the eruption itself, and yet in all its characters it is as much a post-latent stage symptom, and proving therefore, that there is a post-latent stage, as the eruption is a symptom of the stage which succeeds that of incubation. The same may be said of the so-called relapses of typhoid fever; what they in fact indicate is that typhoid fever does not cease when the fever ceases, just as scarlet fever does not; it is really a longer disease than the thermometer measures, and bears in this a resemblance to ague. On the same grounds, I suspect that measles has a post-latent stage in the bronchial tubes, with a continuous process of alteration of the bronchial epithelium going on for some weeks, as specific as its cutaneous eruption is, and that some instances of true sequelæ, such as a life-long asthma, might have been prevented had the significance of the persistent bronchitis been understood as meaning that measles was yet there, rather than that we only had a complication of measles to deal with. Another manifestation of the post-latent stage of measles may be found in the ears, and that this is not a simple local accident, but due to a still present influence of the original disorder in the whole system, may be shown by an unexpected endocarditis, often as insidious and as apt to be overlooked as the otitis itself. The same may be said of such generally trivial disorders in their development stage as mumps and suppurative tonsillitis; after either of these complaints the ears should be watched in the one case and the urine in the other, for the hyperacidity of the latter is often the precursor of acute articular rheumatism. It is doubtful whether any case of ague, with only a single chill as its outward manifestation, can be truly cured under six weeks, as a record of the periodical daily changes in the urine will show. In fact, what we wish to maintain by these remarks is, that all diseases which depend upon an infection of the system by a self-multiplying agent are divisible in their life-history in the body into three stages, namely: 1. The pre-latent or incubative period; 2. The development or manifestation period; and 3. The post-latent period, which latter is not a sequel of the preceding two, but a necessary and integral stage of the whole process, with its own specific characters, and, therefore, its own specific dangers, probably in some cases, as we

[1] Read before the Neurological Section, New York Academy of Medicine, May 15, 1888.

shall mention further on, dependent upon the addition of new special elements in the morbid process.

Diphtheritic paralysis, therefore, is not by any means an isolated case of an infective disease apparently, but only apparently, getting well, because after all signs of it have disappeared, it may be for weeks, yet the patient suddenly presents symptoms of a formidable kind in his nervous system. The intensity of these symptoms also in many cases so much exceeds the preceding signs of diphtheria that I have had several patients brought to me in which no such antecedent was suspected. It is hence a post-latent stage development, for it rarely manifests itself till the second week after the ordinary course of the disease, in most cases not coming on till the third week, and in many not till the fourth week or even longer.

Diphtheritic paralysis is distinguished by the separate rather than the progressive character of its manifestations. Thus it often happens that while it is invading new tracts of nervous distribution it is leaving those which it has first visited, paralysis of the lower extremities, for example, coming on while the pharyngeal and laryngeal symptoms are rapidly improving. This superficial semblance with hysteria ends there, for, as will soon appear, no disease has less of the characters of the functional and more those of the organic paralyses than it manifests. On the other hand, in contrast with organic paralyses, it begins generally with just those signs with which the worst organic forms end—namely, with apparently bulbar symptoms. For a long time the early implication of the palate and pharynx was incorrectly ascribed to the local influence of the antecedent exudation in the throat, but this view is negatived not only by the fact that the paralysis bears no special relation to the extent or duration of the previous angina, but also by the fact that paralysis of the palate and dysphagia are the most common paretic symptoms in those patients where the original seat of the disease was not in the throat at all, but in some other part of the body. It would be difficult to cite a more complete palsy than the palate shows in some typical cases. It does not move from its passive pendant state during respiration, phonation, or deglutition, and as one of its chief functions is to close the posterior nares against fluids during deglutition, one of the first signs of diphtheritic paralysis appears in drinking. It is not only motionless, but also more generally insensitive to all impressions, including electrical excitation, than in this disease elsewhere. The voice is very differently affected in different patients with apparently the same degree of palatine paralysis. If it exists alone a nasal twang is most noticeable; but in one case of my own the vowel sounds were so much altered that the larynx was examined and coincident paralysis of the left vocal cord was found. In this case the superior laryngeal nerve, whose motor filaments supply the muscles of the epiglottis, was not involved at all, the epiglottis being in its normal position and normally sensitive; so that though the patient had extreme dysphagia, yet he never had an attack of choking.

As our present object, however, is not so much to enumerate the varied clinical manifestations of diphtheritic paralysis as to discuss its nature, we may remark here that the coincidence of motor and sensory paralysis in limited localities which are yet supplied from both sides of the brain and cord, would indicate that the lesion was peripheric and not central. It is true that we often have only a motor or only a sensory local paralysis in diphtheria, but in the palate it is frequently the reverse, both arches are equally relaxed and equally insensitive. The significance of this fact was overlooked on account of the wrong interpretation that we had here an example of a general deadening of the part by a specific local inflammation. The same palatine paralysis, however, occurring after a diphtheritic conjunctivitis, for example, ought to have suggested that a morbid process involving the peripheric nerves and not the nerve centres was the true explanation of the condition. On the other hand, some of the features of the next most common manifestation of diphtheritic paralysis, namely, that of the power of accommodation in the eye, are rather puzzling to explain on the hypothesis of peripheric rather than centric origin. The patients lose the ability to distinguish near objects and become far-sighted or presbyopic. Hence, in myopics the disorder is not so easily recognizable. But meantime the light reflex of the iris remains almost invariably intact, and, as in other examples of ophthalmoplegia interna, the loss of accommodation with preservation of the light reflex is a sign of a central lesion, it seems to be difficult to explain diphtheritic cycloplegia as due to a local affection of the ciliary muscle, except that in other paralyses of the third nerve, not diphtheritic, it is rare to find one limited to the ciliary branch alone. It is curious also that the power of contracting the pupil in efforts at accommodation is sometimes preserved and sometimes absent after diphtheria. In about half the cases of palatine palsy the limbs become in time involved, and the legs before and more extensively than the arms. The leg movements are quite unlike those of spinal paraplegia, and instead of being stiff and spreading are more like those of hysterical paralysis in dropping heavily to the floor. Less frequent are paralyses of the laryngeal muscles, those supplied by the superior laryngeal nerve being oftener involved than those of the vocal cords. In such cases the epiglottis remains open, inert, and insensitive, and the danger of choking is very great Paralyses of the muscles of the neck and of the trunk, so generally

spared in hemiplegia, are often so pronounced that the head cannot be held up nor the trunk balanced or moved. In a few, and necessarily dangerous cases, the intercostal muscles and the diaphragm become affected and respiration greatly impeded. In other instances, the muscles of the eyeball, most commonly the external recti, are implicated, and Gowers mentions a case of complete ophthalmoplegia externa affecting both eyes with bilateral ptosis. Sensory paralyses, on the other hand, are just as varied, and seem to bear no relation to the motor disturbances. Thus, Owen of London (*Lancet* of April 2, 1887), reports a case of severe paralysis of deglutition, then of the intercostals, and then complete paralysis of the diaphragm with great weakness of the heart, and finally on the forty-fourth day paralysis of the left external rectus and of some facial muscles. The patient recovered, but throughout there was no alteration of the cutaneous sensibility or any other sensory symptom. On the other hand, in a patient of my own there was a very annoying persistence of symmetrical paræsthesia for six weeks in the soles of the feet with singular sensations following any tactile impressions made on the dorsum, but without any true anæsthesia or analgesia, and no motor weakness whatever. It is significant, however, that when anæsthesia develops in the limbs it is much more pronounced as we approach the extremities, being greatest in the toes and in the tip of the fingers. Of the special senses, hearing is exempt, but both taste and smell, as might be expected from their palatine associations, are sometimes affected. The limitation of the field of vision in some cases which have paralysis of accommodation, has, doubtless, some relation to that disability, for the optic nerve itself almost invariably escapes. It is, however, very probable that the muscular sensory nerves are sometimes involved, even though the cutaneous sensory nerves escape, for diphtheritic ataxia, especially of the lower limbs, often so closely resembles locomotor ataxia that it might be easily confounded with it, but for the history of the case, and the absence of certain symptoms which we now proceed to mention.

The exemptions of diphtheritic paralysis are quite noticeable and peculiar. Besides the nerves of hearing and of sight just mentioned, we have a striking exemption of the vasomotor and trophic nerves. The skin of the paralyzed parts is neither glossy nor œdematous, nor mottled, nor the seat of ulcerations or eruptions. Occasionally we have a more or less transient atrophy of some muscles, as we might expect from some anatomical lesions to be mentioned, but the rule is that trophic changes are conspicuous by their absence. The electrical reactions are sometimes unchanged, oftener, however, when the motor disturbances have been prolonged, faradic excitability is much diminished or lost, and the muscle phenomenon of the reaction of degeneration is present. It is in these cases that we come the nearest to signs of centric implication in slight weakness of the sphincters of the bladder and rectum, especially of the former.

The most characteristic—that is to say invariable—change of diphtheritic paralysis is absence of the knee-jerk. This phenomenon not only accompanies the paralysis, but it belongs to diphtheria as a symptom by itself; for, according to Bernhardt, it occurs in about two-thirds of all cases of diphtheria which have no paralysis of any kind. The existence of a post-latent stage in this disease is thus demonstrated, even if we did not have diphtheritic paralysis, for, according to Bernhardt's observations, its most usual time of development in non-paralytic cases is in the second month, though it sometimes begins at the end of the first. Prof. R. L. McDonnell, Physician to the Montreal General Hospital (THE MEDICAL NEWS, October 15, 1887), however, has published records of eighteen cases of diphtheria admitted into his wards, in ten of whom the knee-jerk was absent on the day of their admission, and while they were suffering from the first symptoms of the disease. His first case was that of a previously healthy boy who had just returned from a visit to a friend when he had an attack of supposed quinsy, and now merely complained of feeling weak. There was nothing to point to the preëxistence of diphtheria except a slight discharge from the nose, and the absence of the knee reflexes. There were at his home four children, three girls and a boy, between the ages of eight and sixteen. Isolation was attempted, but it was too late, for three of the four children took the disease. The patient eventually suffered from great debility, with regurgitation of food, and his voice became quite nasal. The knee-jerk did not become normal for four months. The sisters were admitted to the hospital, where one died, the other two lost the knee reflexes immediately, and subsequently had diphtheritic paralysis. Dr. McDonnell supposes that early loss of the reflex is a pretty sure indication of the advent of paralysis, for, of the ten cases above mentioned, two died, four developed nervous symptoms while yet in the hospital, but of the remaining four no satisfactory report could be obtained of their condition after they left the hospital. Of the eight patients, however, whose knee-jerk was unaffected on admission, paralysis appeared in one, two died, and of the rest no history could be obtained. From these data he concludes that, 1. In a considerable number of cases the knee-jerk is lost from the beginning of the disease, and thus affords a valuable means of diagnosis of the nature of the throat affection; and 2. That absent knee-jerk at the beginning has no influence on the prognosis.

This observation is certainly worthy of being generally tested in acute cases of diphtheria, for it does

not seem to correspond to the experience of others who have found this symptom only in what I term the post-latent stage of the disease. It is not impossible that it was characteristic of the epidemic in Montreal during the time when the observations were made, for we often find seasonal peculiarities in the epidemics of diphtheria as in other epidemics, such as exceptional liability to nephritis in scarlatina, or to intestinal hemorrhages in typhoid fever.

The fact, however, remains that this symptom is of such constant occurrence in diphtheria, and is so significant in itself, from its relation to other nervous diseases, of the nature of the morbid process in diphtheritic paralysis, that it takes the first rank in the consideration of the true pathology of the affection. Dr. Angel Money, in his work on *Diseases of Children*, and also in the discussion on "Diphtheritic Paralysis" in the London Clinical Society, Sept. 1887, speaks of an initial exaggeration of the knee-jerk in many cases as preceding its total loss, thus resembling the same phenomenon in other diseases when it is indicative of the primary nervous irritation which precedes the stage of paralytic exhaustion. I think, however, that this condition must be very exceptional, and suggestive of some exceptional inflammatory element in the parts implicated, for in my opinion, inflammation, either central or peripheral, has nothing to do with true diphtheritic paralysis.

To sum up the conclusions as to the pathology of diphtheritic paralysis from its clinical features alone, before we go further:

1. We would infer that diphtheritic paralysis is due to a peripheric and not centric nervous disorder, because it is so difficult to conceive of the central nuclei being primarily affected in many cases of diphtheria, without their closely contiguous or associated nerve centres becoming also involved, as they are in all other nervous affections where the centres in question are affected. Thus, to take the motor nerves of the palate. According to Vulpian's experiments on dogs, supported by Horsley's and Beevor's experiments on monkeys, the azygos uvulæ and the palatine muscles generally are supplied with motor filaments from the spinal accessory nerves, and not from the motor branch of the fifth, as usually taught. But considering the close association of the nucleus of the spinal accessory with the vagus, on the one hand, and with the laryngeal and cervical muscle nerves on the other, it is hard to see how a case of bilateral paralysis of the palate, if of centric origin would not simultaneously give us symptoms connected with some out of a very extensive array of closely associated motor movements. The facts are, however, that when laryngeal or cervical disorders manifest themselves, it is not simultaneously with the palatine paralysis, but not until long afterward, and generally in a most capricious manner, if contiguity of the centres be supposed to have anything to do with the causation of the disorder. The same may be said about the paralysis of accommodation. If it be of centric origin, as already mentioned, it is difficult to explain why the other branches of the third nerve escape in diphtheria, when they rarely do so in anything else; and here again, while paralysis of the internal rectus has been frequently reported in diphtheria, it does not occur usually until the accommodation paralysis has got well, and as a very late symptom of the case. Moreover, we do not find here the usual associations of third nerve paralysis, such as that of paralysis of the superior rectus with the levator palpebræ. In fact, one of the great characteristics of diphtheritic paralysis is, that it seems to disregard centric associations on principle, as when it attacks the motor branches of the superior laryngeal without involving the recurrent laryngeal, and *vice versâ*.

2. We would conclude from the clinical facts of diphtheritic paralysis, that it is not due to any inflammatory affection of peripheric nerves, that is, not to a true neuritis. I would here anticipate a reference to the pathological anatomy of diphtheritic paralysis, by saying that I do not regard that anatomical change in nerve fibres to which the term parenchymatous neuritis is applied, as a neuritis at all, in the sense that it is caused by a true inflammatory process; rather I regard it as a primary degeneration of the nerve elements quite distinct from inflammation. *Interstitial* neuritis, on the other hand, is the only true neuritis, as it is accompanied by cell infiltration, etc., characteristic of all inflammatory processes, and while nerve degeneration does occur from interstitial neuritis as a result, it is not the primary or the essential process of the affection. Thus alcoholic peripheral neuritis is a neuritis, but the diphtheritic change is no more so than Wallerian degeneration is a neuritis. Now the great clinical feature of neuritis is pain; and absence of pain is the distinctive feature of diphtheritic paralysis. Not but that a true neuritis and nerve pain or tenderness do occur in diphtheria; they do sometimes, but, as I believe, from an independent purulent infection, as we will soon mention.

3. That from the start diphtheritic paralysis is characterized by paralysis of reflex impressions. This of itself is conclusive against a primary inflammatory element; and, moreover, that view is further supported by the absence of signs of inflammation of the vasomotor nerves, which are so sensitive to inflammatory irritation. This early abolition of reflex movements is not only shown in the patellar reflex, but elsewhere even more strikingly. Thus there is not in the body a more wide-awake "reflex" region than at that important switch where the tract of deglutition crosses the tract of respiration. In the treatment of epilepsy, for example, I pay a great

respect to the reflex susceptibilities of that district from the palate down, till the larynx is well cleared, for it is doubtful how much the habit of rapid reflex excitation, by allowing children to eat fast, has to do both with causing and with keeping up epilepsy. But it is just here that diphtheritic paralysis shows its most signal deadening of reflex action. Often not the slightest attempt at gagging will follow the most prolonged titillation of the palsied palate, and the epiglottis, when affected, may be fingered without the least protest.

As to the pathological anatomy of diphtheritic paralysis, we owe to Déjerine the first conclusive demonstration that this affection has for its anatomical basis a change similar in all its essential features to the changes found in multiple neuritis from any cause. In a recent publication by this distinguished investigator, he describes the segmentation of the myeline, the multiplication of the nuclei in the sheath of Schwann, and the disappearance of the axis-cylinder without any signs of interstitial inflammation, as typically developed in a case of diphtheritic paralysis, as in any case of descending Wallerian degeneration. A similar observation is carefully reported by Mendel, in a case of general ophthalmoplegia, where the nerve centres presented no morbid appearance whatever; although the alterations in the nerves to the eyeball muscles were profound. (Gowers, *Dis. Nerv. Syst.*, p. 1231.) On the other hand, a case reported by Paul Meyer, in Virchow's *Archiv*, Bd, lviii. Heft 2, shows that in long-standing cases the process travels up the nerve trunk for a short distance and then skips, as it were, to the root, and then passes into the horns of the gray matter. Meyer, in distinction to most observers, found both the anterior and posterior horns involved, though the former more extensively, and he comes to the conclusion that the diphtheritic agent poisons the nervous textures indiscriminately, both centric and peripheric, so that there is no reason to regard the one as secondary to the other. This, however, is too broad a deduction to make from a single case, in view of the fact that in other diseases characterized by peripheral neuritis, centric changes are sometimes found associated with it. Indeed, it is antecedently probable that extensive lesions involving either region of nerve distribution may often affect the other, so as occasionally to render it difficult to decide which is the primary seat of the process.

Buhl, Gowers, and other writers describe signs of interstitial inflammation of the nerves in some cases. Thus Buhl reports having found evidence of congestion, and even hemorrhage, about the anterior nerve roots. In one case he found the nerve sheaths infiltrated with bodies which he describes as occurring also in great numbers in the false membranes in the throat. Practical bacteriologists are the only ones who can decide the relationship to pathology of such bodies, but in view of the tendency of late researches to reduce most of the alleged specific forms to a single, widely spread organism, we may infer that we have in this case also the same *streptococcus pyogenes* which has done duty as the erysipelas coccus of Fehleisen, the pneumonia coccus of Weichselbaum, the scarlatina coccus of Klein, the diphtheria coccus of Löffler, etc.[1] As far as our present knowledge extends it seems that wherever there is an external focus of ulcerative and suppurative processes, and notably in such a rich bed of lymphatics as the tonsils present, the general system may become infected by absorption both of micrococci and of poisons generated in the inflamed parts, some of which give rise to internal inflammations of various kinds, including neuritis, but further or more definitely than this it is not easy to go.

Muscular degenerations, as might be expected, accompany in varying degrees, however, the nerve lesions of diphtheria. Granular and fatty changes of the muscle fibres have been found irregularly distributed, not only in the same part of the muscle but in different parts of the same fibre. Such alterations have been demonstrated most in the palate, but also in other regions, and especially in the heart. This organ, however, suffers from more than one condition in diphtheria, namely, in the early and in the post-latent stages of the disease. Sudden cardiac failure in the early stage is doubtless due to entirely different causes from cardiac weakness coming on many days afterward in association with late throat and trunk paralyses. In some instances again distinct myocarditis has been demonstrated.

Finally the interesting question presents itself, What is the special agent present in the system which causes diphtheritic paralysis? In the first place it can hardly be the original infective material which is *the* cause of diphtheria, because that belongs plainly to the class of agents which occasion communicable diseases; in other words, it is a living self-multiplying organism. Nothing else can ever cause a communicable disease. For many years I have been accustomed to restrict the term virus to such agents, in distinction from the term poison, which, whether of mineral, vegetable, or animal origin, can never reproduce itself nor ever communicate a disease. It must act always according to quantity, while a virus acts only by growth. Now diphtheritic paralysis is no more catching than any other paralysis. It occurs only after there is nothing more to catch from the patient, generally weeks after the infective agent has done its work. On the other hand our knowledge of the action of the micro-

[1] Prof. E. Crookshank, Distribution of Streptococcus Pyogenes. Lancet, Jan. 21, 1888. Also G. Moos, Bacterial Invasion of Inner Ear in Diphtheria. Archiv. Otology, vol. xvii, No. 1, trans. by Dr. H. A. B. Macauley, New York.

organisms is sufficiently advanced now for us to know that some of them evidently cause disease by generating definite poisons or ptomaines which are absorbable into the blood, and then act there just as other poisons act, some of them as even arsenic does, causing multiple neuritis of a disseminated and yet selective kind. This renders it quite conceivable that a ptomaine may follow upon the changes which the diphtheritic process sets up in the organism, and thus produce all of its characteristic symptoms. The special tendency of diphtheritic inflammation to cause necrotic and gangrenous lesions lends a further support to this surmise.

The late appearance of the symptoms, however, seems to be in harmony with some of the more recent additions to our knowledge of the life history of microörganisms, especially of the saprophytic kind. In the Presidential Address at the last meeting of the British Microscopical Society, Dr. Dallinger gives a very interesting summary of the successive changes which a piece of animal tissue has to go through before it is finally resolved into its component inorganic materials. First begins bacterium termo and does its work with an amazing multiplication of its own form and, moreover, with definite chemical changes as the result of that work. In the course of a week or more, dependent upon the period of the year, there is a rapid succession of spiral forms, such as *spirillum volutans*, *spirillum undula*, and lastly, *bacterium lineola*. After these have done their work and disappeared with further changes in the material, appear two new forms, *cercomonas typica* and *monas dallingeri*, both simple oval forms, but the former has a flagellum at both ends of the long axis of its body, while the latter has a simple flagellum in front. When these have done their work, two new striking forms, *tetramitus rostratus* and *polytoma uvella*, make their appearance, to be followed in turn by *heteromita rostrata*, and *dallingeria drysdali*, the latter the most powerful in its decomposing power of all.

As Dr. Dallinger says, the most important of all ferments, that by which nature's dead organic masses are removed, is one which there is evidence to show is brought about by the successive vital activities of a series of adapted organisms, which are forever at work in every region of the earth.

We may here remark that as the processes of nature are never wholly exceptional, but often are reproduced in many different, yet analogous forms, as in the long known succession in the processes of saccharine fermentation, first to alcoholic, then to acetous changes, so it becomes quite conceivable in view of such facts as these to infer that the working of the diphtheritic organism may prepare, in certain cases, the way for some subsequent process in the body by another organism, when the conditions for its growth have been fulfilled by the antecedent presence of the diphtheritic agent, and that it is during this subsequent process that the poison which works such mischief on the nervous mechanism is produced. As regards diphtheria, this surmise is rendered more probable by the remarkable account of Boissarie cited by Gowers, of an epidemic in a certain district of Paris, where there occurred a series of cases of severe diphtheria, and at the same time a series of cases of paralysis of the palate, eyes, trunk, heart, etc., perfectly like that which occurs after diphtheria, and accompanied by albuminuria. The remarkable fact is that in these cases of primary palsy there was no history of preceding sore throat, and in several of them distinct diphtheria followed the paralysis, which lessened during the throat affection, indicating that the poison of the paralytic disease was of a different origin from the virus of the diphtheria, and hence it is likely that its producer can, under certain circumstances, exist and form its specific ptomaine without having the diphtheritic agent to prepare the way for it. The late researches of Pitres and Villiard on peripheral neuritis occurring after typhoid fever, with instances of the same paralysis of the palate, and of accommodation occurring after that disease as after diphtheria, further lend color to the surmise that we may have an independent origin from some successive organism of the paralyzing poison, which develops, generally, only after diphtheria, but may also after typhoid, and, perhaps, after other fevers, or occur independently, as in Boissarie's cases.

I have but a few observations to make as to treatment. The ordinary course of diphtheritic paralysis is toward spontaneous, though slow, recovery, and, hence, as in chorea and other affections which get well with or without treatment, it is difficult to gauge the influence of the remedies which are recommended. There are certain consequences, however, of the interruption of function by the paralysis of particular muscles which give rise to dangers of their own. Both for frequency and for seriousness, paralysis of deglutition with insensitive epiglottis takes the lead. The patient is not only liable to lose strength rapidly from the difficulty of feeding him, but as we might expect from the close association of the action of the œsophagus with the heart, cardiac failure is to be dreaded as well. Here, as in other tracks of diphtheritic paralysis, I have found the recourse to strychnia and to electricity very disappointing. The faradic current, used as a general cutaneous irritant to the chest, may assist, reflexly, to stimulate the nerves of respiration, as Duchenne recommends it to the back of the chest in paralysis of the muscles of expiration, but I have not been able to assure myself that either the constant or the interrupted current is of much service when locally applied to the palate or throat passages. Instead, I have found that topical irritants seem occasionally to be quite

effective. In palatine and pharyngeal paralysis I begin early with brushing the parts every few hours with a paste of black pepper and honey, and the effect seems to me much more permanent than the ordinary transitory impression of electricity toward awakening the lost, but vitally important, reflex excitability of the parts. Parenchymatous neuritis should always be treated by stimulants, for it is essentially a condition of loss of vitality from the first, and hence in paralysis of the limbs, trunk, etc., I have the parts enveloped twice a day in a pack of infusion of capsicum of the strength of a drachm of the powder to a pint of boiling water, the application to last from ten to twenty minutes. Of medicines, the tr. phosphor., teaspoonful t. i. d., if the kidneys are free, is my favorite.

In accumulation of mucus in the bronchi in respiratory paralysis, there is no reason why the posture treatment, which does so much good in cases of bronchial palsy, should not be tried here. The patient should be let down on his hands from the bed with head down and encouraged to cough, and frequently a short recourse to this measure will result in expelling a quantity of suffocative fluids from the trachea with great relief to the respiration for some time. Cardiac complications require special attention. For the failure which threatens life during the diphtheria itself, alcohol should be given in heroic doses, as recommended by Jacobi, but digitalis never. I shall not soon forget the effect I once witnessed of the administration of this drug in a young man who was sinking from heart failure in the first week of the disease, when I reluctantly yielded to his physician's request to sanction its administration, for every visible artery pulsated after it, just as in cases of extreme aortic regurgitation. When the heart is involved in the later paralysis, the possible presence of myocarditis should not be forgotten. I think that iron, and the explanation of iron as a remedy—oxygen, are our chief resources against this condition. The patient should be kept prone, and as often, or as much as possible, in the open air.

UNILATERAL ANOPHTHALMUS—WITH A CASE.

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The subject of anophthalmus is one of interest alike to the student of teratology and ophthalmology—to the one it is another example of a very constant rule—to the other it is an exception to the histological process with which he is familiar. The monoculus of cyclopia, occurring both in the human subject and lower animals as the result of fusion in an acephalous monster, early attracted attention, and soon received a proper explanation.

Exceedingly numerous also in literature are cases of microphthalmus, in which the eye has been arrested at some particular period of its development, without either atrophy or disease, so that although perfect, perhaps, at birth, its size is diminutive in proportion to the surrounding parts.

Anophthalmus, more properly anophthalmus bilateralis, or complete absence of eyes, was first described in 1609, in Monstrorum Historia, since which time numerous cases have been recorded.

Anophthalmus unilateralis, a much rarer deformity, consisting in the complete absence of an eye, the other remaining perfect or microphthalmic, was first described by Klinkosch,[1] a Bohemian surgeon, in 1766, since which time about 22 cases have been recorded. The term anophthalmus unilateralis would seem to serve better to distinguish these cases from the monoculus of cyclopeæ, than the term monophthalmus, given by some writers. More recently (1881), Dr. E. Hocquart[2] has written an able article on cryptophthalmos—in which in the dissected cases (4) a rudimentary eye was discovered—apparently arrested at the period of formation of the lens.

Observers generally have described the anophthalmus bilateralis as much more common than the unilateralis; and Collins[3] in reporting his case (bilateral) collected 30 of the former, and 12 of the latter, which corresponds to the proportion given by most systematic writers. To these 31 cases might be added 6 others: those of Neary,[4] Radzwzewski,[5] Skrebitzky,[6] and H. Magnus[7] (2 cases), and Stjeminski.[8]

Case.—W. H., male adult, fifty-two years, married, of English birth, presented himself at the clinic of Dr. A. Douglas Hall at Wills Ophthalmic Hospital, suffering from a traumatic abrasion of the left cornea. There was no history of deformity in the family, consanguinity of parents, or maternal impression. On examination the right eyeball was found entirely absent, there being only a small fibrous mass at the bottom of the orbit. The lids and cilia were well formed, but collapsed, and the palpebral fissure shortened. The lachrymal gland and canals were absent. The orbit was remarkably well formed, and gave the appearance of having lost its contents by enucleation.

In the left eye the tutamina oculi were normal, and the eyeball well formed. There was, however, a coloboma of the lower inner segment of the iris, and also of the choroid. The lens and ciliary body were intact, and vision was good.

The peculiarities of the case are the development of the orbit, and the association of coloboma of iris and choroid in the other eye.

[1] Progr. ad ann. Acad., Prag. 1766.
[2] Arch. d'Oph., vol. i. p. 289.
[3] Oph. Hosp. Reports, vol. xi. p. 429.
[4] London Lancet, vol. i. p. 175, 1888. Rep. Roy. Ac. Med. Ireland.
[5] Progrès Méd., Aug. 7, 1886. Rec. d'Ophth., 1886, viii. p. 647.
[6] Klin. monatsbl. f. Augenh., 1881, xix 421.
[7] Arch. f. Augenh., Wiest 1882–3, xii. p. 297.
[8] Vest. ink. oftalmol., Kieff, 1881, vi. 364.

The literature on the subject of unilateral anophthalmus is meagre. To the 12 collected cases of E. T. Collins, the writer desires to add 11 more collected from accessible literature, those of Klinkosch,[1] Rudolphi,[2] V. Walther,[3] Peringer,[4] Hirschberg,[5] Godley,[6] v. Reuss,[7] v. Arlt,[8] Haederath (2),[9] and Chisholm.[10]

From a study of all these cases (12), including the writer's, certain peculiarities were observed.

The age at which they came under observation varied from birth to fifty-two years, of which three were stillborn.

In the 4 cases in which the sex was given, 2 were males, and 2 females. The family history was not recorded in any.

Of other deformities, 3 were monsters, one of which (Klinkosch) had a deformity of the skull and contents on both sides: the hemispheres were not separated, and the ventricles were formed into one large sac filled with water. In another the optic, olfactory, and third, fourth, and sixth nerves were absent. The palpebral fissures of five were described as smaller and shrunken, in one the lids were absent, and two had cysts in the lower lid.

The orbits were described as small in two, and deformed in one, and one contained a large cyst—the remains of the sclerotic, and two others, remains of bulbs.

In two cases the lachrymal apparatus was entirely absent. In 6 out of the twelve cases the other eye was microphthalmic, of varying degrees—one of which contained also a cyst, the size of a walnut, and one (the writer's) had coloboma of iris and choroid.

The earlier writers attributed this defect to congenital hydrops oculi, by which the eye burst, and finally atrophied, but that the more recent explanation, based on embryological facts, is correct, does not admit of a doubt.

This is particularly well shown in the reports of the post-mortems (9) of bilateral cases collected by E. T. Collins,[11] in which not the least trace of an eyeball, or anything resembling it, could be found. "Not in any case was the optic nerve found to enter the orbit; in one it ended in a cone shape at the optic foramen, in another in a fibrous filament, and in five the chiasma was absent. What had happened," he says, "was this, that no primary optic vesicle had budded out from the anterior primary encephalic vesicle, or, having budded out, had failed to form a secondary optic vesicle."

The remarkable development of the appendages, which are derived from the epiblastic and mesoblastic layers; the cases of so-called cryptophthalmus bilateralis, before referred to; and the association of anophthalmus with microphthalmus, and coloboma of the iris and choroid, are all interesting in themselves, and add additional weight to the correctness of the theory.

222 South Sixteenth Street.

[1] Klinkosch, loc. cit.

[2] Berlin Med. Encyc., Wörterb., t. iii. p. 285.

[3] Notes in angeborenen Fellhaut gdscowülste, etc., Landshut, 1804.

[4] Med. Jahrb. d. Oester. Staates N. Folge, Bd. iv.

[5] Trans. by J. Furst, Arch. Oph., N. Y., 1879-80, viii.

[6] Brit. Med. Journ., 1883, i. 253.

[7] Wien. med. Presse, 1885, xxvi. p. 178.

[8] Allg. Wien. med. Ztg., 1885, xxx. 105-107.

[9] Ueber monophth. congen. Diss. Bonn, 1871.

[10] Gaillard's Med. Journ., N. Y., vol. xxix. p. 191.

[11] E. Treacher Collins, loc. cit.

MEDICAL PROGRESS.

Acute Poisoning from Quinine.—Rosenbusch, in a recent number of the *Przeglad Lekarski*, reports a case of acute quinine poisoning, which he had observed in the hospital of Prague. After the administration of 15 grains of the sulphate of quinine the patient was attacked with shivering, tinnitus aurium, severe headache, cold and pains in the extremities, palpitations, and vomiting, with great prostration. An hour later the patient became unconscious, the temperature rose to 103.5° F., the pulse was 158 and compressible, the pupils contracted, but reacting to light, the tongue dry. The skin of the face and the whole body presented a uniform redness, resembling that of scarlet fever, and composed of many small confluent patches. The likeness to scarlet fever eruption was the more striking as the neck and the thigh were very deeply colored. Respiration was difficult. Castor oil, caffein, and cold compresses to the head and the cardiac region were ordered. On the following day the temperature was only 97° F., the pulse 108, with considerable arterial tension. The patient had a restless night and was delirious; the bowels acted toward morning, the rash became paler, the pupils regained their normal size, the tongue became red and coated with yellow patches. Sensations of tearing and trembling in the extremities were complained of. Bromide of sodium was given. The rash and all the other symptoms described disappeared in two days, and only a slight pigmentation of the skin remained. The patient had stated that, five years ago, he had a similar attack after taking two powders, each containing 7½ grains of sulphate of quinine. On that occasion the rash disappeared the next day. Dr. Rosenbusch points out that this case is specially interesting by reason of the high temperature, which had never before exceeded 101.5° F.; also on account of the great resemblance of the rash to that of fever, from which at first it could hardly be distinguished. The absence of throat symptoms and the sudden occurrence of a diffuse and uniform blush over the whole body were the chief features which differentiated the affection from scarlet fever.—*British Medical Journal*, May 5, 1888.

Glycerine as a Laxative.—Novatny is quoted by the *Centralblatt für die gesammte Therapie* for May, 1888, in his report of two hundred cases in which he used glycerine, per rectum, as a laxative. The dose was from thirty to forty-five minims; the effect was generally pro-

duced in from one to two minutes; in a few cases two or three hours elapsed before defecation ensued. Novatny considers the effect produced to be due to the increased peristalsis, extending to the small intestine, producing increasing secretion and fluid stools.

Oxide of Zinc in Infantile Diarrhœa.—M. Dupré stated at the Société Médicale de Reims that oxide of zinc is by far the most effectual remedy in infantile diarrhœa. It should be prepared as follows:

R.—Sublimized oxide of zinc . .	gr. 55
Bicarbonate of soda . . .	gr. 25
Tincture of krameria . . .	20 drops.
Plain syrup	30 "

A teaspoonful of this preparation is given every half hour until vomiting and diarrhœa have ceased. The first teaspoonful stops the vomiting, and the third or fourth the diarrhœa. In the few cases in which this treatment fails in entirely checking the disease, it gives great relief and prevents complications. From 1884 two hundred and thirty-four cases, all of which occurred during the months of July, August, and September, were treated by oxide of zinc, and among these only eight deaths were registered, the death-rate being thus only 4.7 per 100.—*British Medical Journal*, April 28, 1888.

Intra-muscular Injection of Mercury in Syphilis.—The *Medical Press* of April 25, 1888, writes, that the inconveniences to which mercury administered by the mouth is apt to give rise, and the uncertainly which exists as to the precise amount that is being absorbed, have led certain practitioners to resort to injection into the tissues, as a more reliable and, withal, a more convenient method of exhibiting the drug. The earlier attempts in this direction were not attended with the success that had been anticipated, inasmuch as they gave rise to so much pain and such untoward sequelæ as to render continuous treatment impossible. Since others, however, undeterred by the suffering in which they were not called upon to participate, carried their investigations further, it was found to be possible to administer the drug in this way without the untoward results which attended its employment in the first instance. In a paper read before the Medical Society of London, Mr. Astley Bloxam gave the results of a very extensive experience with the different preparations that have been suggested. The preparation which, in his hands, has proved the most uniformly successful and free from inconvenience, is a solution of *sal Alembroth*, containing perchloride of mercury and chloride of ammonium, ten drops of which are equal to a third of a grain of the perchloride. This he injects deeply into the muscles of the buttock. The proceeding is said not to be very painful, though as to this the opinion of some of the patients would be desirable, and no abscess has ever been known to follow. Its advantages are, that the stomach is not deranged, that one injection a week is sufficient to keep the patient under the influence of the drug, and that the disease may be cured with some seven or eight grains of the salt, spread out over a year or eighteen months.

An Interesting Case of Lead Poisoning.—The Paris correspondent of the *British Medical Journal* writes that at the meeting of the Surgical Society on February 9th M. Duguet described a case of lead poisoning. The patient' a woman, aged thirty-eight, was employed in a factory where colored cardboard boxes are made by machinery. Her business was to gum small bands of paper 0.15 centimetre long on these boxes, which were intended to hold reels of cotton. These paper bands are colored red and orange on one side, being gray on the other side, which is covered with gum. In taking up these bands, which are packed in layers, the patient was obliged to wet her finger with her tongue each time, and slip off each band, of which the red and orange side is placed uppermost, with her finger. The gray side of the band had then to be licked, and the band gummed on the box. The patient had frequently gummed as many as 5000 of these bands in one day. She stated that all her companions (eight or ten) who did the same work, all became pale and thin, and suffered from colic. Those who were employed in pasting on blue-colored bands of paper were not affected with any morbid symptoms. The red and orange bands of paper were analyzed by M. Gur. The residue of the paper, when burnt, gave all the reactions of salts of leads. Each band contained about 12 milligrammes of metallic lead. This form of lead poisoning has not been described before. M. Monod suggested that the case should be reported to the Préfect de Police.

The Antiseptic Treatment of Pharyngeal Diphtheria.—Huchard employs the following method of treatment:

The application to diseased surfaces of an alcoholic solution of bichloride of mercury, 1 to 1000. Irrigation with boric acid solution, 1 to 100. Internally the administration, hourly, of teaspoonful doses of

Sodii benzoat.	ʒ 2½.
Aquæ menth. piper.,	
Aquæ destillat.	āā ʒ 10.

Alcoholics, coffee, and nourishing foods should be given, and the air of the room antisepticized by a spray of the antiseptic substance found least irritating.—*Revue de Thérapeutique*, April 15, 1888.

An Epidemic of Various Eruptions following Vaccination.—The Report of the Royal Bureau of Hygiene at Berlin for 1888 (*Veröffentlichungen des Kaiserlichen Gesundheitsamtes*, 1888, No. 3) contains an interesting account of peculiar cutaneous eruptions which accompanied the use of vaccine virus from three heifers, in the vaccine farm at Eberfeld. This farm was in apparent good order; it had been inspected regularly, and its officials were reliable and skilful. Among a large number of successful vaccinations occurred skin eruptions, many of them contagious, among those children and adults vaccinated with the lymph from certain three heifers. The presence of any especial disease in the animals was not recognized. The eruptions were a contagious impetigo, a contagious pemphigus, urticaria, and herpes, accompanied by pruritus. In some cases pustules formed about the original pustule, resembling auto-inoculation. Among children several deaths occurred; in one of these cases post-mortem examination revealed a subscapular abscess, with sero-sanguinolent fluid in the pleural sac. Considerable constitutional disturbance followed the occurrence of the eruptions; contagion seemed to be promoted by schools, and the occurrence of the harvest. By order of the Government the vaccine farm was temporarily

suspended; all instruments and appliances were destroyed, the buildings most thoroughly disinfected, and the heifers destroyed. Vaccine lymph subsequently produced at this farm was excellent in its results. The physician-in-charge sent a specimen of lymph to Berlin for examination. The microscope showed isolated bacilli, and numerous micrococci which multiplied in chains and did not liquefy gelatine. No control experiments, by inoculation, were made.

Wine of Ipecac by Inhalation.—Murrell reports in the *Medical Press* of April 25, 1888, six cases of various affections of the lungs which were greatly benefited by inhalations of wine of ipecac, in spray. He concludes that most successful results are obtained from the employment of the ipecacuanha spray in cases of chronic bronchitis and bronchial catarrh. In fibroid phthisis there is often a marked improvement, even when no constitutional treatment is adopted. A single inhalation will sometimes restore the voice in cases of hoarseness due to congestion of the vocal cords. It is a matter of little importance whether the spray be given with a handball spray apparatus or with a small steam vaporizer. In either case the spray must be warm and the patient should not go out for some minutes after inhaling. Care should be taken te see that the spray really enters the chest and is not stopped by the arching of the tongue against the wall of the mouth. The best results are obtained by using the spray for about ten minutes, three or four times a day. In the majority of cases of winter cough relief will be obtained in ten days.

Creolin, Internally.—Spaeth, of Frankfurt, in the *Münchener medicinische Wochenschrift* of April 10, 1888, gives the following formula which he has found useful in prescribing creolin internally:

Creolin.	ʒ 3.
Tragacanth. pulv.	gr. 30.
Spirit. dilut.	♏ 30.
Glycyrrhizæ pulv.	ʒ 6.
Muc. gum. acac.	q. s.

Ft. pil. 200 in num.

Dose.—One pill, two or three times daily.

The Dangers of Saccharin.—The Paris correspondent of the *Medical Press*, of April 25, 1888, writes, that in introducing a discussion on this subject, M. Worms said that the most interesting application that he made of this remarkable product was that of enabling those who suffer from glycosuria the possibility of eating sweetened aliments without the fear of increasing their malady. But he found that saccharin was not very well borne by the patients to whom he gave it. Out of four treated, only one was able to continue its use, the others suffering from gastric disturbance. Consequently he considered there would exist a certain amount of danger to the public if the drug were to be extensively used by grocers, confectioners, etc., in the sweetening of their products, as twenty grains of saccharin have a sweetening power equal to nine ounces of white sugar. M. Dujardin said he had not met with the accidents mentioned by his colleague; he gave as much as 120 grains to a dog without witnessing any ill effects; consequently saccharin was not toxic. However, it could not be considered as an aliment, because it was found after ingestion in the urine unchanged. He agreed with M. Worms on the necessity of examing the subject more fully, and especially in a commercial point of view, as if this product of tar were to be used by the trades mentioned a very serious prejudice would be caused to one of their most important national industries.

The Disinfection of Apartments.—Krupin has recently experimented in the Alexander Barrack at St. Petersburg upon various methods of disinfecting rooms. He found that the ordinary disinfection practised by chlorine gas is inefficient; anthrax spores left in a room so treated were uninjured. The best method of disinfection, from the standpoint of efficiency, convenience, and cheapness, for bedding, clothing, and rooms of the sick, is steam of corrosive sublimate solution one per cent; walls and furniture should be washed with this solution, or one composed of equal parts of corrosive sublimate 1 to 100, and carbolic acid five per cent. Disinfection by this method does not expose a subsequent occupant of the room to danger.—*Deutsche medicinische Wochenschrift*, April 26, 1888.

Suture of a Wound of the Liver.—The *Riforma Medica*, of April 25th, states that Professor Postempski recently stitched up an incised wound of the liver. The operation, which is said to be the first of the kind ever performed, took place in the Ospedale della Consolazione at Rome on April 18th. The abdomen was opened, and the edges of the wound, which was situated in the left lobe, and which was 2¾ inches in length, and ¾ inch in depth, were brought together by two catgut sutures, applied by means of extremely fine needles. The hemorrhage, which had been very free, was at once checked when the wound in the liver-substance was closed. On April 23d, four days after the operation, the patient's temperature was normal, and he was doing well. Professor Postempski will publish the case in detail in due course.—*British Medical Journal*, May 5, 1888,

Cocaine in Diseases of the Genito-Urinary Organs.—Fenwick, in the *Lancet* of May 5, 1888, concludes as follows on this subject; If pain in any part of the body be due to a *slight* nerve irritation of an unimportant character, a cocaine injection into the urethra will rapidly relieve it. If, on the contrary, the pain is due to severe nerve irritation, a cocaine injection will not relieve it. These facts open a large field in the differential diagnosis of the causes of pain, as well as the just estimation of the amount of pain experienced by neurotics and others. I have used it largely in the diagnosis of urinary diseases. For instance, in cases of renal pain, if a urethral injection of a 20 per cent. solution of cocaine immediately relieves a pain in the kidneys, I diagnose a transient or unimportant cause for that pain, such as congestion, uratic urine or grit, colonic pressure, &c. If, however, the renal pain is uninfluenced by such an injection, I give a more guarded prognosis, and this has been several times verified by the subsequent passage of small stone, or, as in one case, by the development of a renal carcinoma. There are also various vesico-urethral diseases, in which cocaine thus used proved of diagnostic value, as in glans pain, urethral pain, suprapubic pain, &c. Lastly, there is every reason to believe that

it will prove of value as a prophylactic agent in warding off, by inhibition, the untoward effects of reflex renal flooding after operations upon the bladder and urethra. I have used the drug with this object for a couple of years, and I hope soon to be able to bring forward physiological as well as clinical evidence upon this point.

Albuminate of Iron.—*The Bulletin Général Thérapeutique* of April 30, 1888, gives the following formula for the preparation of albuminate of iron:

Egg albumen (dried),	gr. 45
Cinnamon water	ʒ 7½

Dissolve and add:

Liquid perchloride of iron	ʒ 3
Distilled water	ʒ 10

Mix; add aqua ammonia ♏ 15, shake well and filter. The resulting liquid should be aromatic, reddish-brown, and alkaline. It may be given in milk, or any desired article.

The Incompatibilities of Antiseptics.—Boxall reports experiments to determine the incompatibility of various antiseptics in the *British Medical Journal* of April 28, 1888, and concludes as follows:

The moral conveyed by the experiments is obvious: avoid as far as possible the admixture of anti-septic agents and their contamination with lubricants and with soap when incompatibility exists. For instance, in employing corrosive sublimate it is advisable to use the same solution for disinfecting the hands (carefully avoiding contamination with soap) and for cleansing instruments[1] as for irrigating the parts, to employ a mercurialized lubricant and to use alembroth dressings. If for any reason it becomes requisite to substitute one antiseptic agent for another, a second should be chosen which is not incompatible with the first, and the same precautions should be observed throughout the series.

The above observations deal with one phase only of the subject. I am content to leave to more able hands the elaboration of further details. The second question—the chemical nature of the bodies produced—is for the chemist to answer; the third point—the antiseptic value of these bodies—still remains for the germiculturist to determine. When these points have been settled and acted upon, less scepticism as to the value of antiseptic agents may be looked for. The fault lies not so much with the antiseptics themselves as with the unscientific method in which they are often employed.

Alcohol as a Digestive Tonic.—In a discussion on the use of alcohol at the recent Congress of German Physicians at Wiesbaden, von Jaksch, in speaking of alcohol as a digestive tonic, said that alcohol is of positive value in those cases where no pronounced anatomical alteration of the stomach is present, and also no great alteration in the quantity or quality of its secretions. In neurasthenic patients, where a tonic and hypnotic effect is desired, beer is advised. For the promotion of digestion, light red and white wines are best. For stimulation, alcoholics of high percentage are indicated. Von Jaksch, and all who took part in the discussion, were decided in their expression regarding the necessity of limiting the use of alcoholics in accordance with the indications stated.—*Deutsche medicinische Wochenschrift*, April 26, 1888.

[1] Here, again, a caution is requisite, for copper and steel, unless nickel-plated, are apt to decompose the solution and to cause precipitation of the mercury in a free state.

Micro-organisms in Vichy Water.—Some elaborate investigations, which have been undertaken by Dr. Frémont, have apparently resulted in the discovery of a number of microörganisms in the mineral waters of Vichy. The microscopic bodies vary according to the source of the water, and some are said to possess the property of acting upon food substances and assist in the transformation of the latter into peptones. A Commission has been appointed, consisting of several noted scientists, to inquire into the alleged discovery, and, upon the whole, we cannot but feel some satisfaction that this is the case. The result of their researches will certainly be watched with interest by those whose convictions on the utility of Vichy waters are beyond cavil; for we may presume that most persons who patronize these waters would prefer to leave the peptonization of their food to the ordinary arrangements of digestion, and would object to the intrusion of microörganisms to a wholesale extent, whatever the effect might be. Reflective minds, however, may find in this record the germ of a large therapeutic earthquake. It may be that the utility of Vichy waters has hitherto depended upon the microörganisms they contain, and extending this hypothesis to other medical agents, it may be the case that each drug has a germ which thrives and develops in the blood only when the drug is given. Thus to make an extravagant suggestion, it may be, after all, the fact, that the action of drugs depends directly upon germ life.—*Medical Press*, April 18, 1888.

Soluble Iodo-tannate of Mercury, for Hypodermatic Use in Syphilis.—Nourry, of Paris, has found the following combination productive of a salt easily soluble for injection in the treatment of syphilis:

Hydrarg.	gr. ⅛
Iodini	gr. $\frac{2}{20}$
Acid. ratanhiæ tannic.	gr. ⅗
Glycerin. pur.	♏ 15

This injection is not followed by pain, abscess or induration. Its absorption is very rapid; in forty-eight hours after taking the quantity stated, violent salivation and gastric disturbances may occur. The ordinary injection of this compound should, therefore, not be more than one-half a Pravaz's syrings (seven minims) of the solution.—*Bulletin Général de Thérapeutique*, April 30, 1888.

The Development of the Pharynx in the Embryo.—Piersol, in a preliminary communication to the Medical Society of Würzburg, reports researches upon the development of the pharynx in mammals which show that the pharyngeal space is developed before the branchial arches; that an external and internal pocket, or cavity, form, which subsequently form three, and from which epithelial tubal masses are developed. The middle ear and Eustachian tube are developed from the different divisions of the pharyngeal space. The thymus and thyroid gland are also developed from the divisions of the pharyngeal space. A detailed account of his researches will appear in the *Zeitschrift für Wissenschaftliche Zoologie*.

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SATURDAY, JUNE 9, 1888.

THE MICROBE OF DYSENTERY.

CHANTEMESSE and WIDAL report the discovery of a specific bacterium in dysentery (*Progrès Médical*, April 21, 1888). Working in Cornil's laboratory, they have studied five cases of tropical dysentery and have found the same microbe in the lesions and stools of a fatal case and in the stools of four others. The bacteria were found in colonies in and between the tubular glands of the intestine, in the lymph glands, and spleen. The organisms develop rapidly at the ordinary temperature, thriving on all the usual culture media. They are bacilli, with rounded ends and somewhat thicker in the middle than toward the extremities. They grow luxuriantly in sterilized water from the Seine. Fed to guinea-pigs, pure cultures produce intestinal inflammation and necrosis, the stomach itself being affected. The lesions are more marked when the gastric contents are rendered alkaline. Intraperitoneal injections cause death in two or three days with peritonitis, pleuritis, and pericarditis. The liver is affected in these animals, necroses with colonies of bacilli being found in the portal areas. All the lesions in the experimental cases furnished pure cultures of the bacillus.

From these facts, and the absence of the bacillus in the feces of healthy men, Chantemesse and Widal feel justified in claiming specific properties for this bacillus.

Although the observations they have made are too few in number to bring absolute proof, they are of interest as being the first in which so much has been accomplished. Numerous other investigators have described microörganisms in dysentery, but none, up to this time, have succeeded in cultivating them. Further developments will be awaited with interest.

SPONTANEOUS AND EXPERIMENTAL TYPHOID FEVER IN ANIMALS.

WHETHER typhoid fever occurs naturally in our domestic animals, and whether it can be produced experimentally, are questions which have received most contradictory answers. Veterinarians are by no means agreed on the first point. There is a disease in the horse characterized by swelling and ulceration of the Peyer's glands and enlargement of the spleen, but the recent observations of SERVOLLES and of LEBAT would indicate that with superficial resemblance the affection is etiologically distinct. Anatomically the lesions are very similar, and in the current number of Virchow's *Archiv*, SEMMER has described several cases in horses and dogs. The statements bearing upon the experimental production of the disease are also at variance. While Klein, Klebs, Gaffky, and others obtained negative results, Birch-Hirschfeld, Fränkel, and Simmonds, and Michal and Todor have produced in rabbits, mice, and guinea-pigs a disease with enteric symptoms and swelling of the spleen. In the *Lyon Médical*, No. 14, 1888, PERREY gives the result of some observations upon this question which are of value, as no lesions were produced by the injection of material directly into the duodenum, nor, in a horse, by the introduction of cultures directly into the jugular vein. Nor were positive results obtained in the case of six animals which were fed for many days with potatoes upon which were growing pure cultures of the typhoid bacillus. He holds that the artificial disease has never the true picture of human typhoid, but is rather a septicæmia induced by the penetration of the bacilli.

INEFFICIENT QUARANTINE.

THE great responsibility resting upon the health officer who guards a city and, through it, an avenue to the whole country against the introduction of contagious or infectious diseases from foreign ports, is never more fully recognized than when through his error of judgment or incapacity persons suffering from such diseases are allowed to pass quarantine without recognition or restriction. An error of this kind at any time may lead to extended propagation of disease, with all its ulterior evil consequences.

From information reliably obtained, it seems to be undisputed that the recent occurrence of smallpox in Philadelphia can be traced to a case of varioloid imported on one of the transatlantic steamers which arrived at this port on February 1st of this year; and it is almost as clear that this case was sufficiently suspicious in its manifestations to have been detected by ordinary skill and care. But it was not, and hence the spread of the disease. Moreover the mistaken diagnosis of cases of disease not requiring quarantine, and the consequent useless detention of vessels arriving in port, furnish additional ground for fearing that the people have not the benefit of that experience and vigilance which they have the right to expect in the administration of the important office of Port Physician.

It is incumbent upon the appointing power to select for this responsible position a man possessing undoubted qualifications, especially as the duty of intercepting disease brought to the country through this port is entrusted to his care for a greater portion of the year, and its skilful and intelligent performance is absolutely essential to the protection of the health of the whole country. The best quarantine regulations are fruitless without judicious and efficient execution; and it therefore behooves the Governor of Pennsylvania, in view of the serious allegations which have been brought to public notice, to make careful investigation into the manner in which the duties of the office have been discharged by the present incumbent.

ON Thursday, the 31st ult., a fire broke out on the upper floor of the Medical Hall of the University of Pennsylvania, and destroyed the Histological and Pathological Laboratories. The Wistar and Horner Museum suffered a good deal from water, and many valuable specimens were destroyed by falling plaster and by careless handling in removal. Many books in the Stillé Library were badly damaged by water. The losses are fully covered by insurance. The necessary repairs can readily be completed before the opening of the next session, and we learn that designs have been prepared for a complete rearrangement and enlargement of the histological and pathological laboratories.

THE public of Philadelphia has sustained a severe loss in the death of Miss Alice Fisher, who nearly four years ago was appointed by the Board of Guardians to take charge of the Training School for Nurses at the Philadelphia Hospital. Only those familiar with the inner history of that institution can appreciate the changes which have been effected under her judicious direction. The good work which she has accomplished has stimulated other hospitals of the city, and training schools have been established at the Pennsylvania, Episcopal, and University Hospitals. By no means the least important lesson of Miss Fisher's too brief life in this community has been the demonstration of the fact that the profession of nursing affords an ample, as well as a most suitable, field for women of the highest culture and intelligence.

IT is proposed to begin at once the erection of a Maternity Hospital for the University of Pennsylvania on the grounds of the University Hospital, to consist of a main central building and two wings. Sufficient money is on hand to complete the erection of one wing, and it is confidently expected to finish the whole building at an early date.

AT the recent examination held in Toronto by the Ontario Medical Council, 241 students presented themselves for the primary examination (anatomy, chemistry, physiology, and materia medica), of whom 125 passed and 116 were rejected. At the final or pass examination, which alone entitles a doctor to practise in the Province, of 167 candidates, 97 passed and 70 were rejected.

THE Maine Medical Association will hold its thirty-sixth annual meeting at Portland, Me., on Tuesday, Wednesday, and Thursday, June 12, 13, and 14, 1888, under the presidency of Dr. F. C. Thayer, of Waterville.

THE Association of American Institutions for Idiotic and Feeble-minded Persons will hold its twelfth annual session at the Rossio House, Toronto, Canada, on Monday, June 18, at 3 o'clock P.M., moving to Orillia on the following morning. By resolutions of previous sessions, the following reports will be called for: "On Causation of Idiocy," etc., superintendents reporting from their earliest received cases. "On Status of the Work before the People and Legislatures of the various States." "On Development and Progress of the Institutions represented." "Improvements in School Training and Hospital Care introduced during the past year." "Clinical reports of special cases." A number of interesting papers have been promised.

The Board of Pharmacy of Brooklyn, New York, has taken official action tending to restrict the sale of "Rough on Rats." It has issued a circular to all pharmacists in that city, stating that, according to trustworthy analyses, the dangerous article contains ninety percentum of arsenic, and directing that all sales thereof hereafter made by them must be in strict accordance with the statutory rules governing the dispensing of poisons. This action we regard as worthy of commendation and imitation, for, while it cannot, of course, prove prohibitory of its purchase by persons bent on self-murder, it will cause druggists and housewives to be more circumspect than formerly in the handling of the deadly compound.

Dr. Gersung, of Vienna, Assistant to Billroth, has performed the novel operation of transplantation of nerve from rabbit to man. The patient was Dr. von Fleischl, Professor of Physiology at the University of Vienna, who suffered from neuroma in the stump of his right thumb amputated sixteen years before, in consequence of an injury received while making a post-mortem examination. The sciatic nerve of a rabbit was inserted in the interval of the resected median, and held by suture. The operation, which was done under chloroform about two months ago, has resulted in a marked subsidence of the neuralgic distress, and sensibility is becoming reëstablished in the part. It should further be stated that the distinguished patient had been the subject of amputations, resections, and other surgical procedures for the constantly recurring neuromata that promptly developed after every operation except this latest one done by Dr. Gersung.

The Chair of Hygiene, at Netley, made vacant by the death of Dr. de Chaumont, is about to be filled by the appointment of Dr. J. A. Marston, Deputy Surgeon-General. He has already temporarily occupied the chair during the illness of his predecessor, last summer.

Sir William Jenner, having retired from the presidency of the Royal College of Physicians, received from the present officers of the College the highest token of respect, in a visit of gratulation from the President, Senior Censor, Registrar, and Dr. Quain. Sir William expressed his gratification at their visit, and remarked that his rule in life had been never to do more than one thing at a time: first, as an investigator; secondly, as a teacher; thirdly, as a practitioner.

The following item, purporting to be a cable dispatch from Paris, appeared in the daily press: "An officer was sent to arrest a man, known as the 'Wizard of Montmarte' for the illegal practice of medicine. The wizard was reputed to be an ignorant quack. On the appearance of the officer, the wizard produced a diploma and avowed himself a doctor of the Paris faculty, with full right to practise medicine. He further stated that, although he had distinguished himself at his examinations, he had starved as a regular practitioner, but that having set up as a quack, he had made his fortune, and had now amassed a capital of $80,000. The people had avoided him as a doctor, but rushed to him as a quack."

REVIEWS.

The Rules of Aseptic and Antiseptic Surgery. By Arpad G. Gerster, M.D., Professor of Surgery at the New York Polyclinic, Visiting Surgeon to Mount Sinai Hospital and the German Hospital, New York. 8vo. pp. 326. New York: D. Appleton & Co., 1888.

The author starts with the proposition that owing to the strides made within the past few years consequent upon the general adoption of Listerian principles, nearly all English text-books are inadequate to the wants of modern students. We think he has achieved a high measure of success in his laudable effort to render clear and distinct the underlying principles which govern the practice of all surgeons professing to employ aseptic or antiseptic measures, but which too often appear to the majority of practitioners as "an incongruous chaos of seemingly contradictory and often incomprehensible details, arbitrary and varying according to the predilections or whims of this or that teacher."

Dr. Gerster, with commendable candor, admits that the methods of wound treatment herein explained are, to a certain extent, still undergoing changes, yet it is undoubtedly true that just in proportion to the clearness with which the *principles* are understood is the rarity of changes in the *methods* of achieving asepsis and antisepsis. In his endeavors to render easily comprehensible the adaptation of the principles to various classes of cases, he has minutely detailed innumerable operations, many of which we think had better have been omitted, except that the author would have had to occupy a less prominent position, but then, *that* would have perhaps allowed of a clearer demonstration of the principles of asepticism and antisepticism unencumbered with a mass of notes of essentially similar cases.

Beginning with a succinct account of what is meant by sepsis and asepsis, the treatment of aseptic wounds is first considered with the proper dressings, instruments,

and essentials for public and private practice. Ten minutes' perusal of this section will convince any unprejudiced reader that with but little trouble aseptic methods are as easy of application in private practice as in a well-appointed hospital. While agreeing in the main with the author, why, may we ask, is capillary drainage ignored both in theory and practice, a method which we have proved to be effective in many major and minor operations?

"Soiled wounds" are next treated of, when the differences between "aseptic" and "antiseptic" methods are explained and illustrated. Special rules regarding the treatment of accidental wounds, and special applications of the aseptic method as illustrated by scores of cases, complete the first portion of the work.

"Antisepsis," which, paraphrased, means the treatment of suppuration, is next taken up and fully illustrated by cases.

"The Aseptic and Antiseptic Treatment of Tuberculosis," "Gonorrhœa, its Antiseptic Treatment," and "Syphilis, Aseptic and Antiseptic Treatment of its External Lesions," are the remaining topics discussed by Dr. Gerster.

Agreeing unreservedly with the author that "It cannot be successfully denied that *the surgeon's acts determine the fate of a fresh wound, and that its infection and suppuration are due to his technical faults of omission or commission*," we cannot but hope that this book will be widely read and most thoroughly digested. Many years of extended experience of the principles taught in this work have convinced us of the absolute truth of the above statement. The book is admirably printed on superfine paper; the illustrations, so-called, in most instances show next to nothing and might have been omitted without injury to the work.

The Treatment of Hemorrhoids by Injections of Carbolic Acid and other Substances. By Silas Y. Yount, M.D., Physician to St. Elizabeth's Hospital, Member of the American Medical Association, Member of State Medical Society, and Member of the Tippecanoe County Medical Society. Second Edition. 8vo. pp. 102. Lafayette, Ind.: Echo Music Co., 1888.

At the outset we must take exception to the author's unwarranted assumption that it requires special knowledge, teaching, and training—especially by the perusal of works like the present—to treat piles successfully, for we know that any hospital surgeon of average experience is far better fitted to treat such diseases than the so-called rectal specialists. This may seem severe language, but when the author takes the unscientific position that *all* varieties of internal hemorrhoids are to be treated by weak solutions of carbolic acid, ignoring the fact that in most persons, after fifty years of age *bleeding* ceases and the rectal prolapse is the chief occasion of complaint, while prolapse will recur so long as the tumors remain, our strictures will commend themselves, at least in a measure. Still further, careful perusal of the work by any of our readers will, we are sure, cause them equally with us, to decide that no necessity existed for the production of this book when such excellent works as those of Allingham, Van Buren, and Kelsey's were already in the hands of the profession.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Section on Pædiatrics.

Stated Meeting, May 23, 1888.

The President, J. Lewis Smith, M.D., in the Chair.

Professor Victor C. Vaughan, of the University of Michigan, Ann Arbor, read a paper on

EXPERIMENTAL STUDIES ON SOME POINTS CONNECTED WITH THE CAUSATION AND TREATMENT OF THE SUMMER DIARRHŒAS OF INFANCY.

(See page 621.)

Dr. W. D. Booker, of Baltimore, read a paper on

A STUDY OF THE MICROÖRGANISMS IN THE STOMACH AND INTESTINES IN THE SUMMER DIARRHŒA OF INFANTS.

It has been ascertained, he said, that in the intestinal tract of all milk-fed infants in health there are constantly present, and in large numbers, two species of bacteria, viz., the *bacterium lactis aërogenes* and the *bacterium coli commune*. These were designated as the obligatory milk-feces bacteria, as distinguished from the inconstant bacteria which are found under various circumstances. The latter are aërobic for the most part, and, as a rule, are somewhat more numerous in the feces of infants fed on cow's milk than in the feces of sucklings.

He had separated twenty-three varieties of bacteria from the dejecta of eighteen children affected with different forms of summer diarrhœa, a description of which is given in a paper read by him before the Section on Diseases of Children of the Ninth International Medical Congress. He finds that the diarrhœal feces contain mostly a different bacterial vegetation from the healthy feces, having a much larger number of varieties than the latter.

During the past winter he has studied the changes perceptible to the naked eye and the microscope produced by these bacteria upon milk, and especially upon milk and bile mixed in different proportions. Bile does not apparently destroy the bacteria found in diarrhœal discharges, and cultures can be obtained from pure bile after being inoculated and kept for days in the thermostat. Some of the varieties of bacteria show diminished activity in milk when bile is added, others increased activity. In milk colored green by a large quantity of bile, or light yellow by a small quantity, one variety gives to the mixture a bright yellow color. This variety is found frequently in the diarrhœal feces. Some varieties give to the milk and bile mixtures a brown color, some a white or whitish-yellow, and one variety a gray color. Some of the varieties cause a disappearance of the oil globules in the milk, with a deposit of granular matter; some varieties do not affect them.

Dr. L. Emmett Holt read a paper on

MICROSCOPIC EXAMINATION OF THE STOMACH AND INTESTINES IN THE SUMMER DIARRHŒA OF INFANTS.

The cases were divided into three classes, according to the duration of the disease. This in 82 fatal cases was as follows:

(1) Those lasting four days or less, 10 cases.
(2) Those lasting from four to ten days, 31 cases.
(3) Those lasting over ten days, 41 cases, or one-half

the whole number. The average duration of this class was about three weeks.

In the *first class* the microscopical examination was the least satisfactory. Post-mortem changes took place rapidly in the intestines in hot weather, and unless autopsies were made six hours after death, no significance could be attached to the alterations of the epithelium, which were almost the only changes.

In the *second class* there were found, with considerable uniformity, degenerative changes in the epithelium of the tubules of the intestine, those in the stomach being less constant. There was marked infiltration of the solitary follicles of the colon, and, to a less degree, of the small intestine, with similar changes in Peyer's patches. The solitary follicles had ruptured in many places, but there were no ulcers. There were no important changes in the submucous coat, except a sprinkling of new cells in its superficial portion.

In the *third class* well-marked lesions were found in the intestine, usually involving all the coats. Those in the colon, consisted of infiltration of the mucous membrane with new cells, in great numbers, obliterating many of the simple follicles; the submucous coat was crowded with round cells quite to the muscular coat, sometimes even invading this. There were superficial ulcers involving the mucous membrane only, and deeper ones reaching quite to the muscular coat, but none invading this coat had been met with. These were follicular in their origin. The most marked changes in the mucous membrane were found near these follicles. The lesions were not uniformly distributed, nearly healthy follicles being found quite near those which were completely disorganized.

In the large intestine, the cæcum, sigmoid flexure, and upper part of the rectum, were the portions in which the most advanced lesions were met with. In the small intestine the changes were usually limited to the lower part of the ileum, and were not nearly so marked as in the colon. Peyer's patches were swollen and often ruptured, but no ulcers of any moment had been seen about them, nor about the solitary follicles here. In a few instances patches of false membrane were seen in the colon.

The changes in the stomach in these protracted cases were not constant, there might be lesion of extensive gastritis, or the stomach might be almost normal.

The paper did not discuss the subject of the microorganisms found in the tissues. The writer's own investigations are as yet incomplete, and the reports of others are conflicting and indecisive. We can be pretty certain that at the end of three weeks lesions of a good deal of importance exist in the intestine. A glance at the size and depth of these follicular ulcers enables one to understand the chronic, rebellious course of these cases, the frequency of relapses, and the importance of local treatment by injections, if we would treat the lesion at all.

The paper was illustrated by a number of drawings, showing the various lesions of the disease.

DR. J. LEWIS SMITH said that, at his request, a well-known chemist had made a series of experiments for the purpose of ascertaining what effect, if any, the different germicidal agents now coming into vogue in the treatment of summer diarrhœa had on the process of digestion, and he said it was a point of some practical importance to know that these agents do not appear to retard digestion to any extent that would lead us to hesitate on this account to employ them.

DR. GEORGE B. FOWLER referred to the myriads of bacteria found in the intestines, and said that the pathological ferments are all organized, while the physiological forments are all unorganized. Still, the latter are fully capable of developing active poisons, as shown in the case of xanthin, etc. He had always regarded the gastric juice as possessed of valuable antiseptic properties, so that it stood on guard, as it were, to render more or less inert poisonous organisms entering the system by the mouth. Many high authorities also teach that the bile has an antiseptic value.

DR. A. CAILLÉ said that the practical outcome of the evening's discussion was about as follows: If we admit the bacterial origin of the summer diarrhœa of infants, we must admit that its principal cause is to be found in milk; and if this is acknowledged, we are forced to the conclusion that the ordinary methods of preparing and preserving milk are altogether faulty. At the February meeting of the Section on Pædiatrics, he had called attention to the apparatus devised by Dr. Soxhlet, of Munich, by means of which the preparing and feeding of sterilized milk can be carried out in any family. In his article on the subject Soxhlet said: "During the process of milking particles of manure and other forms of dirt get into the milk, and during transportation and general handling fermentation sets in; so that much of our milk is really unfit for consumption before it gets into the stomachs of infants and children. Mother's milk, on the contrary, is taken directly, and would undoubtedly be equally contaminated and frequently injurious to infants if it suffered the same manipulation."

Since the February meeting a New York firm, at his suggestion, had begun to manufacture and were now ready to supply an apparatus similar to that of Soxhlet, consisting of a tray holding ten feeding-bottles with combination stoppers, and a pot to boil them in. These, together with extra bottles, a tin dipper for warming the milk immediately before feeding, rubber nipples, and a cleansing brush are all packed in a box ready for transportation. In using the apparatus each bottle is filled to within one-half inch of its neck with the food prepared according to the age of the infant, and a perforated rubber stopper pressed well into the neck of the bottle. The bottles are then set in the tray, and the tray in the pot containing water up to the neck of the bottles, and the water is brought to the boiling point. After the water has boiled for ten minutes each bottle is hermetically closed by pressing a glass stopper down through the perforated rubber stopper. After the boiling has continued for ten minutes more the tray is lifted out and set aside to cool; after which it should be kept on ice or in a cool place until all the milk has been used. Milk prepared in this way can be kept sweet and pure for any required length of time.

The apparatus, Dr. Caillé went on to say, can be purchased for four dollars, but as this is probably too expensive for the poor, he would recommend that a mother unable to buy one should get six or eight bottles provided with the combination stopper, and boil the milk prepared for her infant in them.

DR. A. SEIBERT said that he had no doubt that the proceedings of this evening would constitute a stepping-

stone toward the attainment of a really scientific knowledge of the origin of summer diarrhœa. He was gratified to find that Professor Vaughan had also arrived at the same conclusion as himself, that 60° Fahrenheit is the boundary line beyond which the fermentation of milk commences.

DR. J. E. WEEKS said that a year ago he had made a series of experiments in regard to the action of different agents on the pus germ. He found that salicylate of sodium is inert, while salicylic acid is actively germicidal; and he believed, therefore, that Professor Vaughan was right in concluding that in his own experiments the salt becomes changed, and that its germicidal value is really due to the salicylic acid that is liberated. Naphthalin he found germicidal in rather strong solutions, while bichloride of mercury stands very high. Nitrate of silver also stands high.

PROF. VAUGHAN said that in his own experiments it was probable that the lactic acid present set some of the salicylic acid free from the sodium salicylate. In Dr. Weeks' experiments, there being no such agent present, the salt would naturally remain unchanged. As to the practical use of germicides in the treatment of summer diarrhœa, the dose of the bichloride of mercury required would be about one twenty-fifth of a grain, and as this seemed rather large for young infants, it would, no doubt, be safer to give five grains of salicylate of sodium, which was the dose of this agent required for the purpose desired.

The Chairman having inquired whether it is a fact, as supposed by some, that calomel becomes changed into the bichloride of mercury after being taken into the system, Dr. Vaughan replied that this is undoubtedly the case with a certain proportion of the amount taken, and it seemed probable to him that the change is especially likely to take place when the calomel is given in small doses.

NEWS ITEMS.

The Congress of American Physicians and Surgeons at Washington.—THE AMERICAN PHYSIOLOGICAL SOCIETY has issued the following preliminary list of papers to be read at the meeting to be held in Washington, D. C., on September 18, 19 and 20, 1888.

On the Therapeutic and Forensic Aspects of Hypnotism. By Dr. G. Stanley Hall.

On Enzymes Comparable with Papain, found in certain fruits of temperate climates. By Dr. G. L. Goodale.

On the Knee-jerk Phenomena. By Dr. H. P. Bowditch.

On the Nature of the Knee-jerk. By Dr. W. P. Lombard.

On the Effects of Varying Rates of Nerve Stimulation upon the Character of Muscular Movements. By Dr. H. P. Bowditch.

Growth and Death. By Dr. C. S. Minot.

The Cells of the Cortex Cerebri. By Dr. C. S. Minot.

The Uterus During Gestation. By Dr. C. S. Minot.

On the Temperature Limits of the Vitality of the Mammalian Heart. By Dr. H. N. Martin.

Histological Changes Produced in Ganglion Cells by Stimulation. By Dr. H. H. Donaldson.

On Fever. By Dr. Isaac Ott.

On the Distribution of Bacteria in Drinking Waters and Public Buildings. By Dr. W. T. Sedgwick.

The Origin and Regeneration of Blood Corpuscles. By Dr. W. H. Howell.

On Certain Ptomaines. By Dr. V. C. Vaughan.

On the Physiological Action of Uranium Salts. By Dr. R. H. Chittenden.

On Myosin and Certain of its Decomposition Products. By Dr. R. H. Chittenden.

On the Influence of Acetanilide or Antifebrin on Proteid Metabolism. By Dr. R. H. Chittenden.

THE AMERICAN CLIMATOLOGICAL SOCIETY announces the following programme:

The President's Address. By Dr. A. L. Loomis, of New York.

The Relation of High Altitudes to Germ Disease. By Dr. S. A. Fisk, of Colorado.

Is Climate an Etiological Factor in Graves' Disease? By Dr. R. G. Curtin, of Philadelphia.

An Environment Experiment Reported. By Dr. E. L. Trudeau, of Saranac Lake.

Definite Results Obtained by the Climatic Treatment of Disease. By Dr. A. Y. P. Garnett, of Washington.

Invalids Suited for Treatment at Colorado Springs. By Dr. S. E. Solly, of Colorado.

Influence of Semi-Tropical Latitudes on Types of Disease. By Dr. John Guitéras, of Charleston.

Discussion: The Relative Importance of Different Climatic Elements in Treatment of Phthisis. *Referee*, Dr. E. T. Bruen, of Philadelphia; *Co-Referee*, Dr. V. Y. Bowditch, of Boston.

Observations on the Use of Terebine. By Dr. D. M. Cammann, of New York.

Climate and Bright's Disease. By Dr. J. C. Wilson, of Philadelphia.

Discussion: The Mineral Waters of the United States; Therapeutic Value as Suggested by their Chemical Composition. By Dr. A. C. Peale, of Washington.

Their Therapeutic Value in Gastro-Hepatic Diseases. By Dr. Wm. Pepper, of Philadelphia.

In Urinary and Arthritic Diseases. By Dr. A. H. Smith, of New York.

In Malarial Diseases. By Dr. J. C. Van Bibber, of Baltimore.

Report on Mineral Springs. By Dr. C. C. Rice, Chairman, of New York.

Interpleural Pathological Products; their Cause, Significance, and Special Relationship to Pulmonary Phthisis. By Dr. J. R. Leaming, of New York.

Conditions which Tend to Render the Atmosphere of a Locality Aseptic. By Dr. J. T. Whittaker, of Cincinnati.

Discussion: Influence of Altitude on Cardiac and Pulmonary Diseases. *Referee*, Dr. F. Donaldson, Sr., of Baltimore; *Co-Referee*, Dr. J. J. Levick, of Philadelphia.

Climatic Characteristics of Texas. By Dr. Morse K. Taylor, U. S. A., of San Antonio.

Therapeutic Differences of Mountain and Sea Air. By Dr. W. H. Geddings, of Aiken.

Indications and Contra-indications for Altitude in Treatment of Phthisis. By Dr. F. I. Knight, of Boston.

Discussion of the Nasal and Neurotic Factors in Etiology of Asthma. *Referee*, Dr. F. H. Bosworth, of New York; *Co-Referee*, Dr. E. L. Shurly, of Detroit.

Therapy of Climate. By Dr. I. H. Platt, of Lakewood.

Therapy of Ocean Climate. By Dr. A. L. Gihon, U. S. N.

Climatic Characteristics of Roan Mountain, Eastern Tennessee. By C. J. Kenworthy, of Florida.

Notes of Summer in Switzerland. By Dr. D. B. St. John Roosa, of New York.

An Epidemic of Cerebro-Spinal Meningitis in Central New York. By Dr. W. T. Ford, of Utica.

Further Contributions to the Study of Consumption among the Indian. By Dr. W. Matthews, U. S. A.

The American Society of Microscopists will hold its next meeting at Columbus, Ohio, August 14, 1888.

The British Medical Association.—The fifty-sixth annual meeting of this Association will be held this year at Glasgow, on August 7th and three following days. The President-elect is Professor W. T. Gairdner, M.D., LL.D. The Address in Medicine will be delivered by Dr. Clifford Allbutt, of Leeds: the Address in Surgery by Sir G. H. B. Macleod, M.D.; and the Address in Physiology by Dr. J. G. M'Kendrick. A special address on "Recent Investigations in Surgery" will be given by Dr. W. Macewen.

Professsr Virchow.—The Emperor of Germany has conferred upon Professor Virchow the honor of the Red Eagle of the second class.

Medicine and Politics in Alsace.—By a decree of the Governor of the Department, the Société de Médicine de Strasburg has been dissolved; in other words, the authorization which is required by law for all meetings of more than twenty persons has been withdrawn. No reasons are given for this rigorous decision, and the disappearance of this venerable society has given rise to general expressions of regret.—*British Medical Journal*, May 26, 1888.

Fire in a Chemical Laboratory.—Fire in the laboratory of Dr. A. R. Leeds, of the Stevens Institute, Hoboken, N. J., recently caused damage to the extent of $5000.

An Anthropometric Laboratory.—Mr. Francis Galton has described his ideal of an anthropometric laboratory as a place where a person may have any of his various faculties measured, and where duplicaties of his measurements may be preserved as private documents. Besides the ordinary simpler apparatus, such an institution should contain instruments for psycho-physical research, for determining the efficiency of each of the various senses and certain mental constants. Instruction might be afforded to those who wish to make measurements at home, together with information about instruments and the registration of results. A library would contain works relating to the respective influences of heredity and nurture. It might also fulfil a welcome purpose as a receptacle for biographies and family records.—*Popular Science Monthly.*

Water Pollution a Thing of the Past.—The *Sanitary News* hopefully believes that with the cremation of garbage and precipitation of sewage, accomplished facts, water pollution will be a thing of the past.

Pharmaceutical Reform in Germany.—Revelations in a criminal trial at Strasburg last week disclose the prevalence of great abuses in the dispensing of drugs in at least one part of the Teutonic empire. In the late autumn of last year Dr. Flocken, a general practitioner, was in attendance on two patients suffering from rheumatoid arthritis, and in both cases, by some inexplicable mistake, he prescribed the extract instead of the tincture of colchicum. The unfortunate sufferers were thus made to take in each dose of this powerful depressant about ten times the maximum allowance, and they soon died of colchicum-poisoning. In both cases the prescription, in the absence of the apothecary, Greiner, was made up by his assistant, Wolf, and, without apparent misgiving, delivered to the messenger. Worse, however, is yet to follow. Dr. Flocken, on learning the fatal consequences of his ignorance or negligence, contrived to get back the prescriptions, destroyed them and the remainder of the medicines, of which he also got possession, removed the labels from the bottles, and in concert with Greiner, suppressed the prescription-book. For this a new book was substituted, and in it were entered the old prescriptions, all rewritten, including the two which prescribed the extract instead of the tincture of colchicum. After a two days' trial, Dr. Flocken, Greiner, and his assistant, Wolf, were all found guilty; the second assistant, Anders, being acquitted. Dr. Flocken was sentenced to six months' imprisonment, in which the month he had spent in prison before his trial was counted; Wolf, as the dispenser of the two fatal draughts, to three months; and Greiner, the master apothecary, who aided and abetted the falsifying of the prescription-book, to two weeks. Considering the gravity of the case, the sentences of the three are by no means too exemplary.—*Lancet*, May 26, 1888.

The "Moxie" Nerve Food.—The *American Analyst* for May 15, 1888, states that it has caused this preparation to be analyzed, finding it wholly inert. Publication of this fact resulted in a suit for damages by the proprietor of "Moxie," which was decided for the defendant, the plaintiff paying all costs.

Antiseptic Ammunition.—A useful suggestion is being carried out by the Netherland Government, by which provision will be made for supplying each soldier, during the time of war, with a cartridge containing some antiseptic dressings. Each cartridge will be made of convenient size, namely, about three inches in length, by two in width, and will be secured at one end with a safety pin. The dressing contained in each will consist of a bandage, about three yards long, and two pieces of gauze, all of which have been rendered antiseptic by a sublimate solution. Hence, in the event of wounds being received a ready means would be at hand for the immediate application of antiseptic dressings. Soldiers, in the case of slight injuries, would probably at once avail themselves of the dressings, and the latter could not fail to be of much use to the surgeons. The idea is well worthy of the attention of the military authorities in this country, and might even with advantage be adopted, as it has been for years past in the German army. In the wars in which, during the past few years, we have been engaged in tropical climates, the early application of antiseptics to the wounds received by the men was admitted to be a matter of the utmost importance by the

army medical officers attached to the forces.—*Medical Press*, May 9, 1888.

Adulteration of Cod-liver Oil.—Professor Peel, of St. Petersburg, reports an adulteration of cod-liver oil with fifty per cent. of mineral oil, and although it contained this large amount of mineral oil suspicion was not aroused by the appearance or taste. The stools of patients had the odor of petroleum, and this led to the discovery.—*American Journal of Pharmacy*, May, 1888.

Antidotes for Poisons.—The *American Journal of Pharmacy* for May, 1888, writes that a general antidote for poisons is a mixture composed of equal parts of calcined magnesia, wood charcoal, and hydrated oxide of iron, with a sufficient quantity of water. It is, as a harmless and simple remedy, applicable in such cases when the nature of the poison is unknown.

As an antidote for iodoform, BEHRING recommends a twenty per cent. solution of bicarbonate of sodium.

Imagination in Men and Women.—An interesting experiment was made by Dr. Durand, in reference to the relative power of imagination in the two sexes. He gave to one hundred of his hospital patients a dose of sweetened water, and shortly afterward entered the room, apparently greatly agitated, saying he had by mistake administered a powerful emetic. In a few minutes four-fifths of the subjects were affected by the supposed emetic, and were mainly men, while every one of those not affected were women.—*The Popular Science Monthly*, June, 1888.

Season and Disease.—While it appears from the records of English health officers that some diseases have special seasons in which they are most likely to prevail, it is not shown that occasional variations in temperature have much influence in the matter. Scarlet fever is at its minimum from January to May, and at its maximum in October and November. Diphtheria is more evenly distributed through the year, and is most dangerous a little later than scarlet fever. Measles and whooping-cough seem to be somewhat aggravated by cold weather, but are most fatal in May and June. Hot weather is adverse to smallpox, and favorable to disorders of the bowels, particularly in children.—*The Popular Science Monthly*, June, 1888.

Medical Education in England.—A committee of the English Medical Council has been appointed to consider the best means of increasing the practical element in medical education. Although the strictly scientific parts of medicine are taught as they never have been taught before, it is conceded that there has been a falling off in the practical part, and that the new graduate, although more learned in minute anatomy, chemistry, and physiology than his predecessors, is less apt at recognizing and treating common diseases.—*The Popular Science Monthly*, June, 1888.

Chocolate Chewing Gum and Paraffine.—Two confectioners in Glasgow have been fined £3 each, under the Adulteration of Foods Act, for selling a sweetmeat called chocolate chewing gum, and containing 42 per cent. of paraffine wax. It was stated for the respondents that the confection was manufactured in Lincoln, and that it was bought by children for the purpose of chewing and then making crackers. Dr. Russell stated that the paraffine wax was insoluble in any of the fluids, and indigestible, and might so irritate the stomach as to cause convulsions in children of tender years. The sheriff said the article had a misleading name, and as children might purchase it for eating, the trade must be put down.—*British Medical Journal*, April 21, 1888.

An Explanation.—Messrs. Wm. R. Warner & Co., request us to state that they have no connection with the firm of H. H. Warner & Co., of Rochester, who make "Safe Remedies" and other patent medicines.

NOTES AND QUERIES.

THE MODIFIED LITHOTOMY STAFF.

To the Editor of THE MEDICAL NEWS,

SIR: Referring to the communication of Nathan R. Smith, M.D., of Baltimore Md., May 7, 1888, in your issue of the 12th inst., I desire to state that in 1877 I assisted at an operation for lithotomy successfully performed by Professor Alan P. Smith (son of the late Professor Nathan R. Smith) upon a Justice of the United States Supreme Court, the grooved lithotomy staff, devised by Professor Nathan R. Smith, being used.

Professor Smith's lithotomy staff is the instrument *par excellence* —the operator having entered the point of his knife in the groove of the staff may proceed with mathematical certainty to the bladder. The staff was first used many years ago by Professor Nathan R. Smith. Yours, respectfully,

SOLON B. STONE,
A. A. Surgeon U. S. Army.

POST HOSPITAL, FORT MISSOULA, M. T.,
May 28, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING JUNE 2, 1888.

CRAIG, F. C., *Passed Assistant Surgeon.*—Detached from Naval Hospital at Norfolk, and ordered to the Naval Hospital at New York

WENTWORTH, A. R., *Assistant Surgeon.*—Detached from U. S. S. "Galena," and ordered to the Naval Hospital at Norfolk.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING JUNE 2, 1888.

DEVAN, S. C., *Passed Assistant Surgeon.*—Granted leave of absence for ten days, May 29, 1888.

CARRINGTON, P. M., *Passed Assistant Surgeon.*—Granted leave of absence for five days, May 29, 1888.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LII. SATURDAY, JUNE 16, 1888. NO. 24.

ORIGINAL LECTURES.

THE ADDRESS IN OBSTETRICS.

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ADDRESSING myself directly to the present study I propose, not a catalogue of the chief, still less of the numerous articles pertaining to obstetrics and diseases of women published within the year, but a brief presentation of a few of the more important subjects relating to these departments, considered within that time.

ELECTRICITY IN OBSTETRICS AND IN DISEASES OF WOMEN.

The induction of premature labor[1] by the constant current has been tried in seven cases by Brühl, and the results show that this means has a very limited application. It may entirely fail in exciting uterine activity, and even where this effect is produced it must usually be supplemented by other means to cause complete dilatation of the os uteri; moreover, the effect is only secured by several applications.

A very distinguished authority in therapeutics[2] has recently suggested that post-partum hemorrhage should be treated by the faradic current instead of by ergot, friction of the abdominal walls, and other reflex stimuli intended to secure uterine contraction. The suggestion is a valuable one, and yet few obstetricians have the necessary apparatus at hand; and even if they had, probably most cases of post-partum hemorrhage would be arrested by compression of the uterus, and by evoking its contracture by means of the hand and by hot water injections, before an application of faradism could be made.

Electricity for the destruction of the life of the fœtus in ectopic gestation was first tried by Bachetti, in 1857, and the experiment was successful. The operator employed two needles, penetrating the cyst, and connected with an electro-magnetic apparatus; it may be questioned whether the double puncture of the gestation cyst was not the efficient agent. To Dr. J. G. Allen, of Philadelphia, is due the credit of having first successfully used the faradic current for this purpose—this was in 1869—and he thus originated what may be justly termed the American method of treating this grave condition. Several successful cases have since been reported, some of them in the practice of very eminent American obstetricians, such as Thomas, Reeve, and Garrigues, in which Dr. Allen's method was employed. The most recent of these cases was reported by Dr. Van de Warker at the last meeting of the American Gynecological Society. So far, I believe, no fatal result to the mother has occurred when the interrupted current was used. Such fortunate exemption has not always followed the employment of the constant current. Dr. Janvrin, in 1866, reported a case of death, and last year a like result occurred in the practice of Dr. Percy Boulton.[1] The patient of the latter was supposed to be about eight weeks pregnant, three needles were passed into the tumor, and their ends, projecting from the vulva, were connected with the positive electrode of a thirty-cell battery, and a flat sponge connected with the negative pole was put upon the thigh, being moved about from place to place during the six minutes the current was applied. The woman died twenty days after. It is somewhat remarkable that the electrolytic treatment of extrauterine pregnancy is attributed by the author to American physicians; and he states that in a future case he would prefer applying the faradic current, a conclusion he might have reached without his sad experience with electrolysis, had he read the usual practice successfully pursued in this country.

But surely the day is coming, if not already here, when an extrauterine pregnancy, as soon as recognized, will be treated by abdominal section. The brilliant results which Mr. Tait has had in operating immediately after rupture of the gestation cyst in such cases, has opened the way for this important advance. In this city there have been within a year at least two successful operations, one by Dr. Joseph Price, and the other by Dr. Charles B. Penrose, made early in extrauterine gestation and prior to the rupture of the cyst.

Apostoli[2] has recently reported a case of hydrosalpingitis successfully treated by the galvanic current. Two applications were made at an interval of thirteen days, the strength of the current at the first being one hundred and at the second one hundred and forty milliampères; the current was continued for five minutes at each sitting, a steel capillary trocar the size of a needle of Pravaz's syringe was thrust the distance of one centimetre into the most prominent part of the swelling in the vagina, and connected with the negative pole, while the positive pole was connected with his well-known application to the abdominal wall. Apostoli claims that galvanopuncture is a valuable means, accomplishing a double object in such cases: 1. It aborts a phlegmasia in the beginning and arrests an inflammatory process; 2, it permits ready evacuation of a fluid in consequence of the separation of the resulting slough, provided this cyst is united to the vaginal cul-de-sac.

But it must be obvious that such method of evacuating a pelvic serous collection, no matter whether tubal, or in the connective tissues, or peritoneal, has nothing to com-

[1] Arch. f. Gynäkol.

[2] Address in Medicine before the American Medical Association, by Dr. Bartholow.

[1] British Medical Journal.

[2] Nouv. Arch. d Obstet. et de Gynécol., February, 1888.

mend it over the aspiration advised by Hardon in the early stage of inflammation of the connective tissue, or the incision and drainage employed by Laroyenne and Blanc.[1] Some of the cases reported by Blanc in his interesting monograph were believed by him to be hydrosalpinx. Let me turn aside for one minute to refer to Dr. Hardon's method of treating so-called pelvic cellulitis. In such inflammation he states that the first stage, that of serous infiltration, lasts usually not more than forty-eight hours, and believing that the inflammation may be aborted by removing this serum, he introduces an aspirator needle into the inflamed tissue, and withdraws all the fluid he can, when a puncture is made at another point and suction employed, and thus the process repeated at other parts of the tumor. He asserts that by this practice the pain is relieved, the fever ceases, and rapid convalescence follows. Certainly the results he has had speak strongly in favor of his method.

Returning from this digression, in the electrical department of the diseases of women in the Jefferson Medical College Hospital,[2] some very satisfactory results have been had from the use of the interrupted, and of the constant current. Thus, one patient suffering with cervical stenosis and anteflexion, and very painful menstruation, was cured by faradism; previously dilatation, while the patient was anæsthetized, was twice resorted to, once by myself, with only temporary benefit. Within the last five months cases of retroflexion, subinvolution, and old inflammatory deposits in the connective tissue adjacent to the uterus have been treated by the constant current, all of them being relieved, and some of them permanently cured; the strength of the current employed in these cases was ten to twenty-one milliampères, and it was continued for ten minutes, the application was made once in three or four days.

But probably the most important contributions to the use of electricity in diseases of women are those relating to the treatment of uterine fibroids by the methods advised by Apostoli. Foremost among these contributions must be placed Apostoli's, presented at the last meeting of the British Medical Association, and published in the *British Medical Journal* of October 1, 1887. In that paper the distinguished author states that from July, 1882, to July, 1887, he has had under his care 273 patients with fibromata or hypertrophy of the uterus in some manifest degree, and upon these he has used 4246 applications of the continuous current of electricity. In 95 per cent. of the cases in which his advice was fully acted upon, permanent benefit resulted. Keith, Sir Spencer Wells, and Playfair have visited Apostoli at Paris, and after carefully studying his method and its results, have become convinced of its value. Surely their course is to be commended rather than that of a London surgeon who condemns without personal investigation, and declares that he has never tried the Apostoli method, and being a surgeon, does not intend to, thinking it may be more properly left to the obstetric physician. Mr. Keith,[3] writing in December, 1887, states "that hysterectomy is an operation that has done more harm than good, and its mortality is out of all proportion to the benefits received by the few." He further states, "I have never been in favor of hysterectomy, simply because its death-rate is so high, and because it is performed for the removal of a tumor that rarely kills. So strongly do I now feel upon the subject that I would consider myself guilty of a criminal act were I to advise any patient to run the risk of her life—and such a risk—before having given a fair trial to this treatment"—that is, the electrical—"even were I sure that the mortality would not be greater than that which hysterectomy has given me in my private cases—under 4 per cent." At the time this was written he and his son had, within five months, applied electricity "in strong, accurately measured doses" in 100 cases chiefly of fibroid tumors, the number of applications being more than 1200; the results were very encouraging. More recently Skene Keith[1] has reported 7 cases of uterine fibroids thus treated.

Steavenson, though less enthusiastic than Apostoli, or even than Keith, uses the following language:[2] "I do not think that the electrolytic treatment will supplant the necessity for abdominal section or removal of the uterine appendages in such cases as those in which these operations would be appropriate, but I do think that in the use of electricity we have a means of treating fibroid tumors which is superior to any we have formerly employed, short of their entire removal. I have treated a large number of cases, and in nearly all the symptoms have been removed, in many the tumors have decreased in size, and in some the decrease has been considerable." Dr. A. Victoria Scott[3] states, as the result of her experience, that the symptoms of pain and hemorrhage cease, that the general health is improved, and that in all cases treated for a period of two months or longer, there has been a sensible diminution in the size of the tumors. Dr. Franklin H. Martin, in a paper presented at the last International Congress, claimed that the Apostoli treatment is free from danger, is painless, stops hemorrhages, diminishes the tumors, and alleviates neuralgic pains. Villa, on the other hand, gives[4] scant commendation to the method; among other things adverse to the electrotherapic treatment, stating that many of the patients thus treated for a long time by different physicians, among these Dr. Apostoli, have claimed the radical operation. It might be added, Apostoli frankly says that seven patients of his did leave him to have hysterectomy done, and that they are all dead.

I think, in considering the various testimonies that have been given upon the subject, we may safely adopt the words of Aveling,[5] always temperate, and usually wise in his utterances: "If electricity relieves pain, hemorrhage, and bulk of tumor, the three urgent symptoms for which hysterectomy is performed, and the patient is thus symptomatically cured, is it not worth trying?"

PUERPERAL ECLAMPSIA.

Puerperal eclampsia has occupied no inconsiderable space in the periodical professional literature of the past year, but probably no very important contributions have been made to the etiology or to the therapeutics of the

[1] Atlanta Medical and Surgical Journal. De l'Inflammation Peri-uterine Chronique, Paris, 1887.

[2] This department is conducted by Drs. Davis and Scholl, to the latter of whom I am indebted for the above statements.

[3] British Medical Journal, December 10, 1887.

[1] Edinburgh Medical Journal, February, 1888.

[2] British Med. Journal, May 12, 1888.

[3] American Journal of Obstetrics, March, 1888.

[4] Nouv. Arch. d'Obstet. et de Gynécol., Jan. 1888.

[5] British Med. Journal, April 14, 1888.

disease. In regard to the former, the theory so ingeniously and ably urged by Dr. King, has not been generally accepted. According to this theory, "disturbances in the renal circulation are produced chiefly by pressure of the gravid uterus upon the abdominal aorta or its branches, or upon the vena cava or its branches, or upon both or all of them, in consequence of the child and womb not maintaining during pregnancy their normal lateral obliquity above the pelvic brim." The theory fails to explain the occurrence of eclampsia early in pregnancy, and the increased liability from great distention of the uterus, as in plural pregnancy. Moreover, if descent of the fœtal head into the pelvic cavity in the latter weeks of pregnancy, which is the rule in primigravidæ, causes the interference with the circulation referred to, the disease ought to be much more frequent. A Dublin obstetrician, some fifty years ago, stated that there was little danger of eclampsia if the fœtal head did not present. Since cephalic presentations vastly predominate over all others, the importance of this observation is quite plain.

While in the great majority of cases of eclampsia albuminuria is present and has preceded the attack, there still remain a large number in which there is no renal disorder, and these are properly termed reflex, the primary source of irritation being in most instances uterine, though in some it may be vesical; for example, the bladder being distended with urine; such source of convulsions was long ago pointed out by La Motte and by Portal.

A very interesting fact is stated by Herman[1] as to the difference between the albumin escaping in the urine in eclampsia, and in Bright's disease; in the former it is mainly paraglobulin, and in the latter serum-albumin.

So far as therapeutic means are concerned, in addition to those with which the profession is so generally familiar, such as bleeding, chloroform, chloral, and morphia, abroad many practitioners have successfully employed pilocarpine, and in this country veratrum viride was strongly advocated both at the International Medical Congress, and at the American Gynecological Society. In referring to the value of the latter remedy, as claimed by American practitioners, a writer in a British medical journal[2] rather ungraciously remarks: "To prevent disappointment, however, it is right to say that American women appear to respond to drug treatment more readily and certainly than English women."

Some cases of eclampsia treated by inhalation of oxygen have been reported last year, but the results do not seem to establish for this remedy an important position.

THE TREATMENT OF PLACENTA PRÆVIA.

The treatment of placenta prævia is still a subject of no little discussion, obstetricians not having yet adopted by common consent one method as the best, probably because there is no such single way to be followed to the exclusion of every other. Dr. Barnes, very justly as I think, condemns some of the methods employed as disregarding the life of the fœtus. The craniotomists as opposed to the Cæsareans, occasionally refer to the sentimentalism of the latter, when they urge their favorite operation on the ground of saving the life of the child, even though the mother should run a greater risk than if it were sacrificed. But a similar manifestation of feeling seems to be forgotten by some in their mode of treating cases when the placenta is prævia. Le Page, for example, says:[1] "The chances for the child's life, I therefore contend, should not be a factor in the treatment." The same opinion has been avowed in more than one of our American medical societies.

In what has been termed the recent method of treating placenta prævia, that is by bimanual podalic version, as advocated especially by Lomer, Hofmeier, and Behm, the fœtal mortality has been very great, that of the last reaching 83.4 per cent. Of course, the mortality is still greater, if we adopt the rule laid down by Le Page: "At whatever period of utero-gestation after mid-term we become aware of the existence of placenta prævia, we shall serve the best interest of our patient if we at once bring to a conclusion a condition of things fraught with the utmost danger." Yet in the same paper the author states: "Hemorrhage during parturition is not inevitable, nor does loss of blood invariably take place during gestation." The last statement evidently condemns the one immediately preceding, as an invariable rule of practice. I do not believe the majority of obstetric authorities claim that in all cases of placenta prævia the pregnancy must be at once ended; certainly Churchill, Depaul, and Spiegelberg did not so teach. Following such teaching, and that of others equally famous, as well as the light of experience and sound reason, as I believe, I said in my work upon obstetrics, referring to the management of cases of placenta prævia in pregnancy: "If loss of blood be slight, and especially if the fœtus be not yet viable, the expectant plan is indicated." One gentleman, for whose obstetric knowledge and ability I have the highest respect, exclaims: There is no expectant treatment of placenta prævia. And another gentleman, discussing the question in a medical society, and doubtless never having read what I did say, charges me with absolute advocacy of expectant treatment, not specifying the conditions in which it was advised, and graciously attributes such recommendation to my ignorance. By those words as first uttered I still stand, insisting that we have no right to sacrifice the life of the child when the mother's is not in jeopardy. But should the hemorrhage be serious, let the pregnancy be ended, whether the child is viable or not. Further, after that viability has been reached, if the placenta be deeply situated, whether the implantation be central or only lateral, the induction of premature labor is indicated, furnishing not only the best security for the mother's, but also the best chance for the child's life, My advocacy of this practice dates many years back. Thanks to the couveuse and gavage, the time when the fœtus becomes viable may now be placed in the seventh month, and not at its end, as has hitherto been done. Now in the great majority of cases of placenta prævia hemorrhage does not occur prior to this time; and, hence, there is in most cases a protection of the child's life until it is capable of continuing after delivery, should it escape the perils of birth. The question therefore is, How can delivery be effected so that there is a fair chance for the child's life without imperilling that of the mother? Zweifel,

[1] Transactions of the London Obstetrical Society for 1887.

[2] Birmingham Medical Review, January, 1888.

[1] Provincial Medical Journal, 1887; British Medical Journal, October, 1887.

recognizing the deplorable mortality, in regard of the fœtus, attending podalic version as usually done, suggests that the obstetrician, instead of introducing his finger or two fingers on one side of the os, for the purpose of making version, should pass them anteriorly, for there they can enter the uterus further, and with less violence to the placental attachment, and thus a conservative influence be secured in reference to the child: this suggestion may be of value.

All of the three chief methods when labor is complicated by hemorrhage in placenta prævia, are essentially only different ways of applying a tampon; the bleeding is arrested by pressure from the vagina when the classic tampon is used; from the cervico-uterine canal either in case of the hydrostatic dilator, or in that of the drawn-down limb of the child; it is evident, from statistics, that the last method of tamponing is not the best for the life of the child. If we conjoin with the pressure from the hydrostatic dilators of Barnes, his method of partial detachment of the placenta—the physiological reasons for this have been so well presented by him that it is unnecessary, even if there were time, to call attention to them now—we probably have attained the best method of treating placenta prævia after labor has begun, and the vaginal portion disappeared, so far as the interests of both mother and child are concerned; the child's life is less imperilled, in part because prompter delivery can thus be effected. In some cases, probably the method of Dr. Davis, with which the members of the Society are familiar, and which has furnished such good results in his hands, could be well employed.

ANTISEPTICS IN OBSTETRIC PRACTICE.

The prophylactic employment of antiseptics in obstetric practice has justly occupied considerable attention during the past year. After this subject has been so much discussed, and its importance so strongly urged, and the value of these agents in lessening not only childbed mortality, but also childbed morbidity, especially in hospital practice and after instrumental deliveries, has been so conclusively demonstrated, the following statement,[1] made in one of our medical societies about a year ago, reads like an anachronism: "I have not taken pains to disinfect instruments to be used in obstetric practice, and have not had many cases of puerperal metritis."

Kascharoff[2] has devised a bath-tub, in which warm, sterilized water is placed, and the woman's hips and genitals are placed so that they are completely covered by the water during the performance of obstetric operations, and thus infection prevented. He recalls the fact that Aitken, an English obstetrician, in 1784, advised that the Cæsarean operation should be performed under water, believing that then it could be done with less risk than in contact with the air. Such an apparatus as Kascharoff's might possibly be used in hospitals, but could not be employed by the obstetrician in general practice; besides, there are more convenient ways of rendering obstetric operations aseptic.

In considering the prophylaxis of puerperal septicæmia at the last meeting of the British Medical Association, Playfair presented a series of rules for monthly nurses, one of them being that the vagina of the puerpera should be syringed out twice a day with an antiseptic solution. Few obstetricians, no matter how firm believers in antiseptics, will accept this rule of practice; such injections, in case the condition of the woman is normal, are meddling, and may be mischievous.

The dangers from intrauterine injections in obstetric and in gynecological practice, have been the subject of recent study by Maginn.[1] So far as such dangers occur in the puerperal state, they may be guarded against by proper precautions. In the first place, obstetricians have used unnecessarily strong solutions of corrosive sublimate; probably a solution of 1 part of the salt to 5000 of water will meet the requirements of almost every case in which such injections are needed. Next, the solution should never be used cold, but either warm or hot. The injection must be made gently, and free exit of the fluid from the uterus secured. After the corrosive sublimate solution has been used, the uterus is to be washed out by water sterilized by boiling. Nevertheless, if there is a peculiar susceptibility to mercurial action, or in case of renal disease, the ordinary injection should be replaced by a solution of carbolic acid.

CÆSAREAN SECTION.

Probably no more important advance in obstetrics has been made within the last few years than in the method of performing the Cæsarean operation; what is now known as the improved operation has given results in Germany so satisfactory that possibly the day is at hand when craniotomy upon the living fœtus will be very rarely performed, if done at all. If the promise of the hour is fulfilled, the operation will soon count as large a percentage of cures in this country as it has recently in Germany. In New York there have been four successful operations, all within a year, I believe, three of these done by Lusk, and one by Garrigues; in Philadelphia, Dr. Howard Kelly has recently had two successful cases; in Chicago one by Dr. Jaggard, in Toledo one, and in Baltimore one, have been successful.

I am indebted to Dr. Harris for the following table of all the Cæsarean operations done in the United States up to the present month:

Cæsarean operations in the United States			169
Old style			150
Sänger method			19
Women saved under old operation			56
" " " Sänger method			9
Operations in Philadelphia, old style,	6	Women saved,	2
" " " Porro,	2	" "	1
" " " Sänger,	4	" "	2
Operations,	12	Recoveries,	5
Cæsarean operations in the United States in 1887			8
Women saved			4
Cæsarean operations in the United States in 1888 (5 mos.)			6
Women saved			3
Probably will recover			1

14 operations in 17 months. 6 women lost.

The last 15 Cæsarean operations in the United States, all Sänger method but one (Dec. 16, 1887 to June 1, 1888)	
Saved, women	9
" children	12

[1] Detroit Lancet, October, 1887.

[2] Annales de Gynécologie, March, 1888.

[1] Nouvelles Archives d'Obstetrique et de Gynécologie.

GENERAL ADVANCES.

Did time permit, I would like to refer to some most important papers upon extra-uterine pregnancy, such as those of Breisky,[1] Werth,[2] Hart and Carter,[3] and others; to the subject of puerperal septicæmia as considered by Barnes,[4] Byers, Madden, and others, Runge,[5] Leopold,[6] and Galabin,[7] and others; to the operative treatment of puerperal purulent collections in the abdomen, as presented by Besnier[7] and Baldy;[8] to the complications of pregnancy by typhoid fever, to the use of ergot during or after labor, to the valuable lectures by Dr Priestley on the "Pathology of Intra-uterine Death;" to the present status of Alexander's operation, an operation that receives little countenance even in England, and still less in Germany; to the cure of retroflexion of the uterus by substituting another malposition—that is, making it immobile by attachment to the abdominal wall—an operation suggested by Sims[9] twenty years ago, and first performed by Koeberlé, in 1877, and an operation which, though now advocated by some brilliant surgeons, will probably not survive a score of years, but be consigned to "innocuous desuetude;" to the subject of hysterectomy for malignant disease, and various other topics.

A recent paper upon exploratory laparotomy by Dr. Baldy furnishes both instruction and warning. Dr. W. S. Stewart has devised an obstetric forceps with parallel branches; time only will test its value. Nevertheless such an instrument presents some advantages over the ordinary one with crossed branches, advantages which the Lyons school of obstetricians have especially urged, but which have not been generally recognized.

OVARIOTOMY AND SALPINGOTOMY.

Abdominal sections to remove the ovaries, or the tubes, or both, have been attended by so slight mortality in the hands of Battey, of that great master in abdominal surgery, Lawson Tait, not to mention other famous names at home or abroad, and in the practice of what I may call the Philadelphia Dispensary School of Surgeons, and the results of the operations have been in many cases so satisfactory, is there not great danger of such operations being too frequently performed, and are the specimens removed carefully examined by competent pathologists, who conclude that structural changes justify their removal? Nay, is there not danger that men without experience, without previous apprenticeship to a competent master, deceived by the glamour of brilliant statistics, and ambitious of fame as operators, will decide upon and perform these operations when there is no necessity for them, and no benefit follows them, or they are fatal? Sad stories of such events are occasionally whispered, and their warning against rash operations should be heeded. Reverdin[10] has recently stated that castration for nervous diseases ought never to be done unless the patient is examined while anæsthetized, and the ovaries are found to have undergone structural change; it is added that among all the cases of castration of women for nervous diseases, very many have not resulted favorably. If this last statement be true in Paris, is it not probable it is also true in this country?

It cannot be denied that there is a growing belief in the professional mind that these operations are too frequently resorted to; and, therefore, their indications ought to be clearly established, and the presence of the latter conclusively demonstrated, before a woman is subjected to what otherwise is an odious mutilation which may have very injurious consequences, even if her life is not sacrificed in the operation. The dentist may pull a wrong tooth, but an artificial one can make good the loss; the surgeon may needlessly sacrifice a limb, but the mistake is not irreparable, for an artificial one may take its place. But there is no such substitution possible for ovaries unnecessarily removed—the loss is remediless—and, therefore, the greater heed necessary to prevent so grave, if not criminal, an error. Possibly there is a tendency on the part of some to underestimate the value of these organs, and bringing to their charge various pains and aches, either in them or elsewhere in the corporeal domain, in head or in toe, and functional misbehavior or mental disorder, or convulsive disease, try, convict, declare worthy of death, and execute with the rapidity characteristic of a court martial in war times. But is it a slight matter to deprive a woman of organs upon which her sex depends? I recall the words of the most brilliant of American obstetric teachers, the late Dr. Charles D. Meigs,[1] who in referring to woman, said: "Her ovary is her sex, and she is peculiar because of it, and in order that she might have this great, this dominant organ planted within the recesses of her body." I read in Maudsley,[2] when he speaks of the influence of the sexual organs in the development of the boy: "These evolutional effects, that of the functional development of the reproductive organs upon the mind, do not take place when such development is prevented by their removal before puberty. The minds of eunuchs are mutilated like their bodies; they are said to be cowardly, envious, liars, utterly deceitful, destitute of social and moral feelings; with the deprivation of sexual feeling, they are deprived of all the mental growth and energy which it inspires directly or remotely. How much that is it would be hard to say; but were man deprived of the instinct of propagation, and of all that mentally springs from it, it is probable that most of the poetry, and perhaps all the moral feeling would be cut out of his life."

Now is it probable that a woman can have during the reproductive period of her life, in some instances the operation has been done quite early in that period, her ovaries removed without greater or less changes in her mental and moral condition? What those changes are have not yet been studied, save in a very superficial manner, and our knowledge will probably remain imperfect for many years. Peradventure, some of the pages of this scarcely opened book may be read in hospitals for the insane, in courts of justice, and by coroners' juries over the bodies of suicides.

[1] Wien. med. Woch. [2] Deut. med. Woch.
[3] Edinburgh Med. Journ., October, 1887.
[4] British Medical Journal, 1887.
[5] Arch. f. Gynäkol.
[6] Centralblatt f. Gynäkol.
[7] British Medical Journal, 1887. L'Union Médicale, May, 1887.
[8] On Typhoid Fever in Pregnancy, see report by Dr. Hirst, with discussion, THE MEDICAL NEWS, October 1887. Lyon. Méd., August, 1887.
[9] American Journal of Medical Sciences, March, 1888, p. 327.
[10] Revue Médico-Chirurgicale des Maladies des Femmes, March, 1888.

[1] Woman and Her Diseases. [2] Physiology of the Mind.

I have heard an eminent neurologist say that if men's testicles were removed for the same reasons that lead some operators to extirpate women's ovaries, there would be a very large number of eunuchs. Admitting, then, the necessity for these operations thus made common to each sex, there may be compensations. Romeo and Juliet may disappear, but the problem of Malthus can no more vex political economist or philanthropist, and an important step toward the desirable and inevitable completion of human history, according to Schopenhauer, when the will to live, which especially expresses itself in reproduction, ceasing, the human race will pass into a dreamless sleep which knows no waking.

ORIGINAL ARTICLES.

THERAPEUTICS OF DIPHTHERIA.[1]

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DIPHTHERIA is a contagious disease. Severe forms may beget severe or mild forms. Mild cases may beget mild or severe cases. There is probably no spontaneous origin of diphtheria, any more than there is a spontaneous origin of cholera or scarlatina. What has been called follicular amygdalitis (or "tonsillitis") is diphtheria in many, perhaps most, instances. It is seldom dangerous to the patient, because the tonsils have but very little lymph communication with the rest of the body. But the diphtheritic variety of follicular amygdalitis also is contagious. This mild variety is that from which adults are apt to suffer. It made me proclaim the warning that there is as much diphtheria out of doors as there is in doors; as much out of bed as in bed. With this variety the adult is in the street, in business, in the school-room, in the railroad car, in the kitchen and nursery. With this variety, parents while complaining of a slightly sore throat, kiss their children. Wherever it is suspected, it ought to be looked after. Where it is seen, it ought to be isolated and treated, less perhaps for the sake of those who are sick, than of those who are in serious danger of being infected. This is the more necessary, as this form is apt to last long and give rise to repeated attacks. But it is not only the mild variety which is liable to last long. Serious, undoubted cases are also apt to last for weeks, and some of them months. As long as they do persist, they are contagious.

These reminiscences and quotations from former writings must justify the preëminent place I claim for preventive treatment.

Those sick with diphtheria, severe or mild, must be isolated. If barely possible, the other children ought to be removed from the house. This can but rarely be done in the homes of the poor, in the densely populated districts. A great charity is still waiting for its consummation, viz., that of erecting buildings, dormitories and playrooms for those who ought to be temporarily exiled from their infected homes. A suggestion of mine, before the New York State Medical Society, at its meeting of 1882, resulted in the erection of the Willard Parker Hospital of New York, for the benefit of those suffering from scarlatina and diphtheria. The erection of a sufficient number of temporary homes would be a still greater blessing to the poor, and a greater protection to the public at large. If it be impossible to send the well children away, let them remain outside the house, in the air, as long as feasible, and with open bedroom windows during the night, in the most dis-

part of the house; during the winter, on a lower floor. Their throats must be examined every day, and their rectal temperatures taken by the mother, so that the physician may be called on the occurrence of but slight changes. The few minutes spent in this way are amply repaid by the safety they may accomplish. The attendants upon cases of diphtheria must have no intercourse with the well children; though a brief visit of the physician may not render him sick, or dangerous to others, a long exposure affects him or a nurse, to a greater or less degree.

The well children of a family in which there is diphtheria, must not go to school or church. Schools must be closed when a number of pupils have been attacked; or, better still, when there is an epidemic, though it may not yet have affected the school children to a great extent, the teachers ought to be taught how to examine throats, and directed to do so every morning, and send home those children who are suspected.

When an attack of diphtheria has made its appearance, it is well enough to examine the hygienic condition of the house, with its deteriorating influences on the general health of the inmates, and to look after the source of the case in the persons of friends, attendants and help. A family with children ought to insist upon the occasional inspection of the throats of their servants; those with chronic pharyngeal catarrh must not be hired. A seamstress or laundress, coming for an occasional day's work, sick nurses, children's nurses and cooks, ought to be examined from time to time, the more so, the more such people are, for obvious reasons, inclined to conceal slight troubles. The opportunities for infection are so numerous that it is impossible to sail absolutely free from it. It is easy to imagine how many cases of diphtheria are liable to be disseminated by teachers, shopkeepers, restaurants, barbers and hairdressers.

In times of an epidemic, every public place, theatre, ball-room, dining-hall and tavern ought to be treated like a hospital. Where there is a large conflux of people, there are certainly many who

[1] Read, by invitation, before the Philadelphia County Medical Society, May 23, 1888.

carry the disease. Disinfection ought to be enforced at regular intervals. In this respect I can but repeat what I said in my treatise (p. 172) and Pepper's *Cyclopædia* (I. 697). Public vehicles must be treated in the same manner, after a suspicious case has been carried; that it should be so when a case of smallpox has happened to be conveyed in them, appears quite natural. Livery stable keepers, who would be anxious to destroy the germs of smallpox in their coaches, must learn that diphtheria is as dangerous a passenger as variola, and what is correct in the case of a poor hack is more so in that of a railroad car, whether emigrant or Pullman. I have seen many cases coming to and leaving the city in them. They ought to be thoroughly disinfected in times of an epidemic, at regular intervals, for the highroads of travel have always been those of epidemic diseases. Still, can that be accomplished? Will not railroad companies resist a plan of regular disinfections, because of their expensiveness? Will there not be an outcry against this despotic violation of the rights of the citizen, the independence of the money bag? Certainly there will be, exactly as there was when municipal authority commenced to compel parents to keep their children from school when they had contagious diseases in their families, and when smallpox patients were arrested because of their endangering the passengers in a public vehicle, or taken to a fever hospital for the protection of their neighbors. In such cases, it is not society, or the State, that tyrannizes the individual; it is the individual that endangers society.

To what extent the infecting substance may cling to surroundings is best shown by the cases of diphtheria springing up in premises which had not seen diphtheria for a long time, but had not been interfered with; and best, perhaps, by a series of observations of auto-infection. When a diphtheritic case has been in a room for some time, the room, bedding, curtains and carpets are infected. The child is getting better, has a new attack, may again improve, and is again stricken down. Thus I have seen them die; but also improve immediately after being removed from that room or house. If barely possible, a child with diphtheria ought to change its room and bed every few days.

To other rules of protection and disinfection, both private and public, including the prohibition of public funerals, I allude only for the purpose of referring to the admirable rules published by the National Board of Health, in its *Bulletin* No. 10, of September 6, 1879, and copied in my treatise on diphtheria, New York, 1880, and my article on diphtheria, in Pepper's *System of Practical Medicine*, vol. i. p. 698.

Prevention can accomplish a great deal for the individual. Diphtheria will, as a rule, not attack a healthy integument, be this cutis or mucous membrane. The best preventive is, therefore, to keep the mucous membrane in a healthy condition. Catarrh of the mouth, pharynx and nose must be treated in time. Many a chronic nasal catarrh, with big glands round the neck, requires sometimes but two or three regular salt-water injections (1 : 130) into the nose, and gargling if the children be large enough to do so. The addition of one per cent. of alum will often be found useful. This treatment, however, must be continued for many months, and may require years. Still, there is no hardship in it and no excuse for its omission. The nasal spray of a solution of nitrate of silver, 1 : 500 or 1000 will accelerate the cure, and not infrequently has a treatment which was considered obsolete when I was young been of great service to me. It consists in the internal administration of the tincture of pimpinella saxifraga. It is certainly an efficient remedy in subacute and chronic pharyngitis and laryngitis. I generally give it to adults, diluted with equal parts of glycerin and water, a teaspoonful of the mixture every two or three hours, with the proviso that no water must be taken soon after.

Large tonsils must be resected in times when there is no diphtheria. During an epidemic every wound in the mouth is liable to become diphtheritic within a day, and, if feasible, such operations ought to be postponed. The scooping of the tonsils, for whatever cause, I have given up since I became better acquainted with the use, under cocaine, of the galvano-cautery. From one to four applications to each side, or to the post-nasal space, are usually sufficient for every case of enlarged tonsils or lacunar amygdalitis. It is advisable to cauterize but one side at a time, to avoid inconvenience in swallowing afterward, and to burn from the surface inward. Cauterization of the centre of the tonsils may result in swelling, pain and suppuration, unless the cautery is carried entirely to the surface; that means to say the scurf must be on, or extend to, the surface. Another precaution is to apply the burner cold, and heat it *in situ*.

Nasal catarrh and proliferation of the mucous and submucous tissues may require the same treatment, but in my experience the cases which require it are less frequent than those in which the tonsils need correction.

The presence of glandular swellings around the neck must not be tolerated. They and the oral and mucous membranes affect each other mutually. Most of them could be avoided, if every eczema of the head and face, every stomatitis and rhinitis, resulting from uncleanliness, combustion, injury or whatever cause, were relieved at once. A careful supervision of that kind would prevent many a case of diphtheria, glandular suppuration, deformity or phthisis.

For its salutary effect on the mucous membrane

of the mouth, chlorate of potassium or sodium, which is still claimed by some to be a specific, or almost so, is counted by me amongst the preventive remedies. If it be nothing more, it is in a case of diphtheria an adjuvant. It exhibits its best effects in the catarrhal and ulcerous condition of the oral cavity. In diphtheria, it keeps the mucous membrane in a healthy condition, or restores it to health. Thus it prevents the diphtheritic process from spreading.

Diphtheria is seldom observed on healthy, or apparently healthy, tissue. The pseudo-membrane is mostly surrounded by a sore, hyperæmic, œdematous mucous membrane. Indeed, this hyperæmia precedes the appearance of the diphtheritic exudation in almost every case. The exceptions to this rule consist of those cases in which the virus may take root in the interstices between the normal tonsillar epithelia, pointed out by Stoehr but a few years ago. Indeed, many cases of throat disease occurring during the prevalence of an epidemic of diphtheria are but those of pharyngitis, which, under favorable circumstances, may develop into diphtheria. These throat diseases are so very frequent during the reign of an epidemic, that in my first paper on diphtheria (*Amer. Med. Times*, August 11 and 18, 1860) I based my reasoning on 200 cases of genuine diphtheria and 185 of pharyngitis, without a visible membrane.

These cases of pharyngitis, and such of stomatitis and pharyngitis accompanying the presence of membranes, are benefited by the local and general effect of chlorate of potassium. The surrounding parts being healthy or returning to health, the membrane remains circumscribed. The generally benign character of purely tonsillar diphtheria, which is apt to run its full course in from four to six days, has in this manner contributed to secure to chlorate of potassium the reputation of being a ready, *the*, remedy in diphtheria. The dose of the salt must not be larger than fifteen grains for an infant a year old, not over twenty or thirty for a child from three to five years, in the twenty-four hours. An adult should not take more than one and a half drachms daily. These amounts must not be given in a few large doses, but in repeated doses and at short intervals. A solution of one part in sixty will allow a teaspoonful every hour, or half a teaspoonful every half hour, in the case of a baby one or two years old.

It is not too late yet to raise a warning voice against the use of larger doses. Simple truths in practical medicine do more than simply bear repetition; they require it. For though the cases of actual chlorate of potassium poisoning are no longer isolated, and ought to be generally known, fatal accidents will still occur even in the practice of physicians. When I experimented on myself, with half ounce doses, thirty years ago, the results were some gastric and intense renal irritation. The same were experienced by Fountain, of Davenport, Iowa, whose death from an ounce of the salt has been impressively described in Alfred Stillé's *Materia Medica*, from which I have quoted it in my treatise on diphtheria. His death from chlorate of potassium induced me as early as 1860 to prohibit large doses. In my contribution to Gerhardt's *Handbuch der Kinderkrankheiten*, vol. ii., 1877, I spoke of a series of cases known to me personally. In a paper read before the Medical Society of the State of New York in 1879 (*Med. Record*, March 15th), I treated of the subject monographically, and alluded to the dangers attending the promiscuous use of the drug, which has descended into the ranks of domestic remedies; and, finally, in my treatise (New York, 1880), I collected all my cases and the few then recorded by others. Since that time, the recorded cases have become quite numerous, and but a few days ago a few new ones were related before the Practitioners' Society of New York. The facts are undoubted, though the explanations may differ. The probability is that death occurs from methæmoglobinuria produced by the presence of the poison in the blood; though Stockvis, of Amsterdam, has tried, by a long series of experiments, to fortify my original assumption that the fatal issue was due to acute nephritis.

The attempts at forming indications for the treatment of patients with diphtheria—I refuse to say treatment *of* diphtheria, based upon the preconceived or acquired idea as to the nature and causes of diphtheria, are all futile. We know that many cases are undoubtedly of local origin; but there are those in which we require no other proof of its original infectious character than the fact that there is a period of incubation. But all that is indifferent, in view of the fact that the cases we are called upon to treat are, as a rule, or have become, both local and constitutional. It is these we have mostly to deal with.

There is no better proof of the non-existence of a specific in diphtheria than the fact that the pharmacopœia has been exhausted to find one, and new remedies, legitimate and illegitimate, are all the time being recommended as panaceas. While there are certain indications resulting from the characteristics common to all, every case must be treated on general principles, which must be applied to the prominent individual features. When there is a high temperature in the beginning, it requires all the tact of a good physician to judge of the advisability of reducing it by antifebriles, such as sponging, warm bathing, cold bathing, antipyrin, antifebrin, or the subcutaneous use of the carbamide of quinia. Convulsions may demand active treatment, such as chloroform inhalations, or chloral hydrate internally or by the rectum. Vomiting or other cerebral symp-

toms may ask for liquids, or smaller or larger doses of opiates. A very quick and feeble pulse may require a few large doses of a heart stimulant, digitalis, strophanthus or sparteine, in the very beginning.

Renal complications are frequent, and occur at an early time. The majority of cases terminate favorably; in some, a large amount of albumin will be eliminated in the course of a few days, and disappear shortly. But whether your individual case will be of that nature, you do not know, and, in time of danger, nothing must be taken for granted. Milk or farinaceous diet, plenty of water or, better, Poland, Bethesda, Seltzer, Apollinaris or Vichy, warm bathing, warm feet, a few good doses of calomel, a number of hourly or two-hourly, small doses of opium (which are better than those of digitalis and nitro-glycerin) will often prove beneficial. If a diffuse nephritis, such as is more frequently met with in scarlatina, be the result, it impairs the prognosis, and requires further treatment, conducted on general principles.

To what extent *local treatment*, if it be possible to employ it, is effective, can best be seen on external diphtheritic surfaces: thus the cutis denuded by vesicatories, the inguinal regions sore with intertrigo, the vagina, circumcision wounds or tracheal incisions. I have tried almost everything which has been recommended for these conditions, but am most pleased with the effect of iodol or iodoform powdered, or one part with eight or ten of vaseline. Powders of subnitrate of bismuth, boric acid or salicylic acid, with fifteen or twenty-five times its quantity of starch, have not given me the same satisfaction.

The treatment of *diphtheritic conjunctivitis* requires also nothing but local treatment. It consists in the application of small ice-bags or iced cloths, which must be changed every few minutes, and the frequent instillation of a saturated solution of boric acid, with or without atropia.

The *local treatment* of pseudo-membranes of the fauces is a subject of great importance. To look upon them as an excretion which needs no interference is incorrect. If it were possible to remove or destroy them, it would be a great comfort; but they can be reached only in certain places, and just in those in which they do the least harm. Pseudo-membranes on the tonsils are the least dangerous, for their lymph communication with the rest of the body is very scanty. Thus, almost all forms of tonsillar diphtheria are amongst the most benign, at least as long as the process does not extend. Most cases of the kind run their mild course in from five to seven days, and it is just these which have given rise to the many proposals of tearing, scratching, cauterizing, swabbing, brushing and burning. They are cases which do not show the harm done. The fact is, that neither the galvano-cautery, nor carbolic acid, nor tannin and glycerin, nor perchloride or subsulphate of iron can be applied with leisure and accuracy to the very membrane alone, except in the cases of very docile and very patient children. In almost every case, the surrounding epithelium is getting scratched off or changed, and thus the diphtheritic deposit will spread. Besides, the membrane of the tonsil is changed surface tissue, as it always is wherever the epithelium is pavement, and not deposited upon the mucous membranes, from which it might be easily detached. Whatever is done must be accomplished without violence of any kind. If nasal injections be found advisable, they can be made to wash the posterior pharynx and the tonsils sufficiently, so as to render the special treatment directed to the throat absolutely useless. Besides, it is easier, and meets with less objection, and gives rise to less exhaustion than the forcible opening of the mouth. This is of very great importance, as I shall show in connection with the local treatment of the nasal cavity. Where it is possible to make the local applications without difficulty, the membrane may be brushed with tincture of iodine several times daily, or a drop of rather concentrated carbolic acid. Of powders, I know only one, the application of which is not contraindicated, viz., calomel. Even this may irritate by its very form. Everything dry irritates and gives rise to cough or discomfort. Whatever has, besides, a bad taste or odor, such as sulphur, iodoform or quinia, must be abhorred.

For the purpose of dissolving membranes, papayotin or papäin has been employed. It is soluble in twenty parts of water, and may be injected, sprayed or brushed on. I have used it in greater concentration, in two or four parts of water and glycerin, in the nose, throat and, through the tracheotomy tube, in the trachea. One of the irrepressible drug manufacturers and advertisers pushes the claims of some modification of the drug which he calls papoid. For the same purpose, trypsin is preferred by others. The mode of its application appears to be the reverse of indifferent. But lately I have seen, in the practice of one of our best-known practitioners, papayotin applied in powder, which resulted in constant irritation of the throat, while the patient otherwise was convalescent. The pharyngeal hyperæmia and slight exudation disappeared when mild alum washes were substituted.

Steam.—Its inhalation is useful in catarrh of the mucous membranes, and in many inflammatory and diphtheritic affections. On mucous membranes, it will increase the secretion and liquefy it, and thus aid in the throwing off of the pseudo-membranes. Its action is the more pronounced the greater the amount of muciparous follicles under or alongside a cylindrical or fimbriated epithelium. Thus it is that tracheo-bronchial diphtheria, so-called fibrinous bronchitis, is greatly benefited by it. Children affected with it I have kept in small bath-rooms for

days, turning on the hot water, and obliging the patient constantly to breathe the hot clouds. Several such cases I have seen recover with that treatment. Atomized *cold* water will never yield the same result. Nor have I seen the patent inhalers do much good.

Still, where the surface epithelium is pavement rather than cylindrical, and but few muciparous follicles are present, and the pseudo-membrane is rather immersed in, and firmly coherent with, the surface —for instance, on the tonsils and the vocal cords, the steam treatment is less appropriate. On the contrary, moist heat is liable in such cases to favor the extension of the process by softening the hitherto healthy mucous membrane. Thus it takes all the tact of the practitioner to select the proper cases for the administration of steam, not to speak of the judgment which is required to determine to what extent the expulsion of air from the steam-moistened room or tent is permissible.

Steam can be properly mixed with medicinal vapors. In the room of the patient, water is kept boiling constantly, over the fireplace, provided the steam is prevented from escaping directly into the chimney, on a stove (the modern self-feeders are insufficient for that purpose and abominations for every reason), over an alcohol lamp, if we cannot do better, not on gas if possible, because of the large amount of oxygen which it consumes. Every hour a tablespoonful of oleum terebinthinæ, and perhaps also a teaspoonful of carbolic acid, is poured on the water and evaporated. The air of the room is filled with steam and vapors, and the contact with the sore surfaces and the respiratory tract is obtained with absolute certainty.

The secretion of the mucous membranes is sometimes quite abundant under the influence of steam, but still, like that of the external integuments, increased by the introduction of water into the circulation. Therefore, drinking of large quantities of water, or water mixed with an alcoholic stimulant, must be encouraged. Over a thoroughly moistened mucous membrane the pseudo-membrane is more easily made to float and macerate.

It was for this purpose that pilocarpine, jaborandi, was highly recommended. Guttmann recommended it as a panacea in all forms of diphtheria. There is no doubt that the secretion of the mucous membrane is vastly increased by its internal application, and by repeated subcutaneous injections of the muriate or nitrate of the alkaloid, but the heart is enfeebled by its use. I have seen but few cases in which I could continue the treatment for a sufficient time. In many, I had to stop it because, after some days of persistent administration, I feared for the safety of the patients. Thus, as early as the meeting of the American Medical Association, at Richmond, eight years ago, I pointed out the exaggerations in the statements of Guttmann. There will be but exceptional cases in which pilocarpine will be tolerated long enough to do good. It is one of the remedies by which we may cure our case and will kill our patient.

Diphtheria of the nose is apt to terminate fatally, unless energetic treatment is commenced at once. This consists in persevering disinfection of the mucous surface. The disinfecting procedure must not be omitted long, because of the general sepsis resulting from rapid absorption from the surface, which is supplied with lymph ducts and small superficial bloodvessels to an unusual extent. Disinfectant injections must be continued every hour, for one or more days. If they are well made, the consecutive adenitis, particularly that about the angles of the lower jaw, is soon relieved and the general condition improved. But there are cases in which not the lymph bodies are the main gates through which constitutional poisoning takes place, but the bloodvessels only. In the incipient stage of such cases, the discharge from the nostrils is more or less sanguineous; in them, the bloodvessels, thin and fragile, carry the poison inward with great rapidity.

In a few cases injections are unsuccessful. They are those in which the whole nasal cavity is filled with membranous deposits to such an extent as to require forcible treatment. Sometimes it is difficult to push a silver probe through it. That procedure may be repeated, the probe dipped in carbolic acid, or wrapped in absorbent cotton moistened with carbolic acid of 50 or 60 per cent. After a while injections alone will suffice. But now and then, the development of pseudo-membranes is very rapid; a few hours suffice to block the nostrils again, and the difficulty is the same.

The liquids which are to be injected must be warm and fairly mild. Solutions of chloride of sodium, two-thirds of one per cent., saturated solutions of boric acid, one part of bichloride of mercury, 35 of chloride of sodium, and 5000 of water, more or less, or lime-water, or solutions of papayotin, will be found satisfactory. From the selection of these remedies, it is at once apparent that the object in view is partly that of washing out, and partly of disinfecting. I have not mentioned carbolic acid, which may be used in solutions of one per cent. or less. Its employment requires care, for much of the injected fluid is swallowed, and proves a danger to children of any age, but mostly to the young.

Most of the syringes I find in my rounds are abominations. The nozzle must be large, blunt and soft. After having recommended for many years the common hard-rubber ear syringe, the sharp end of which was cut off, I now use always a short stout glass syringe with soft rubber mounting in front.

When the children cannot, or must not be raised,

I employ the same solutions from a spoon or a plain Davidson atomizer. These applications can thus be made while the children are lying down, every hour or very much oftener, without any or much annoyance. The nozzle must be large, so as to fit the nostril. A single spray on each side will generally suffice. I am in the habit of covering the common nozzle with a short piece of India-rubber tubing.

For a day or two, these injections of fluids or spray must be made hourly. It is not cruel to wake the children out of their septic drowsiness; it is certain death not to do it.

Injections of the nose are oftener ordered than judiciously made. Hundreds of times have I been assured that they had been made regularly, hourly, for days in succession. Still there was a steady increase of glandular swelling and sepsis. I never believe a nurse to have made them regularly unless I have seen her doing it. They *will* run up their syringe vertically and not horizontally; the fluid *will* return through the same nostril. On the successful injecting or spraying of the nares hangs every life in cases of nasal diphtheria. I have long learned to look upon a neglect to tell at every visit how to make an injection as a dereliction of duty. This may appear a trifling way, but it is a safe one. The nurse must be made to tell you that at every injection the fluid returns through the other nostril, or through the mouth, or is swallowed.

The procedure is simple enough, and need not take more than half a minute for both nostrils. A towel is thrown over the child's chest up to the chin, and the child gently raised in bed by the person who is to make the injection. This person, sitting on the bed, steadies the patient's head against her chest, while somebody else holds the patient's hands. The syringe is introduced horizontally by the person sitting behind the patient, and gently emptied. No time must be lost in refilling, and attending to the other side. When pain is complained of in the ears, more gentleness is required, or the spray, or pouring in from a spoon, or minim dropper even, has to take the place of the injection.

Many sins are committed in even doing this simple thing. The unfortunate little one is made to see all the preparations, and is worried and excited, and the necessary gentleness in the proceedings is neglected. The cases reported by me before the Section on Theory and Practice in the New York Academy of Medicine, in a discussion on the local treatment of diphtheria, read as follows:[1]

"There were two trained nurses, and two children of six and four years. When I saw the little four-year-old, the other was dead. Where did he die? His head between the knees of the trained nurse. They had been told that Dr. Jacobi ordered nasal injections to be made every hour in such cases. Every hour the unfortunate boy was lugged out of bed, protesting and fighting, and wearing out his little strength in his battle against two trained brutes; had his head rammed between the knees of one of them, who was herself comfortably seated on a chair, while the other did the rest; and thus the boy was murdered. When I heard that fearful story from the smiling lips of that person, I begged and pleaded, and showed her how to do it gently. A week afterward, the doctor told me that the little girl died between the knees of one of the smiling creatures; and neither of them is in the State prison."

What is the concentration in which antiseptic injections should be used? For twenty-five years and more, while employing irrigations and injections frequently, I had used quite weak solutions, and felt assured of their efficacy. All at once (when the gospel of bacteria was being preached) it was claimed that weak solutions were useless and a snare, because antiseptics, and particularly carbolic acid, would not destroy bacteria and bacteria-poisons, except in such doses and concentrations as would necessarily destroy blood and tissues first. I felt dismayed, but still continued in my heretic ways, hoping that improved knowledge would finally harmonize theory and practice. So it happened. In *The American Journal of the American Sciences* for January, 1881, T. Mitchell Prudden proved that a solution of one-sixteenth of one per cent. of carbolic acid prevents the emigration of white blood-corpuscles under circumstances otherwise favorable to inflammation, and Koch found that though bacteria are not easily killed, their growth is stopped by a solution of one part of carbolic acid in 850, and their activity by one in 1200. These effects are all that is required for practical purposes; thus the frequency of applications is justified by both necessity and safety.

Diphtheritic adenitis, the swelling of the cervical glands near the angles of the lower jaw, to which I have alluded as an ominous symptom, points to nasal and nasopharyngeal infection. The treatment consists in disinfection of the absorbing surfaces.

Direct local treatment of the glands, if not entirely useless, is, at all events, of minor importance and efficiency. Applications of one part of carbolic acid to ten of alcohol irritate both surface and patient more than they can do good. Inunctions may do some good by friction (massage); inunctions with some absorbable material in them may do a little better. The common iodide of potassium ointment is useless; iodide of potassium in three or five parts of glycerine is more readily absorbed; the same in equal parts of water, with a little animal fat, and six or eight times its quantity of lanolin, gives an ointment which is readily absorbed. Iodine is found in the urine within a few hours. Iodoform may be utilized in the same way. Injections of

[1] New York Medical Record, 1887, p. 403.

iodoform in ether, which I suggested some time ago, are too painful. Mercurial inunctions, those of blue ointment, require too much time for any effect to take place. Oleates are too irritating locally; a lanolin ointment would prove more satisfactory. After all, however, the readiest method of reducing the swelling of the glands, and improving the prognosis accordingly, is that of cleansing and disinfecting the field of absorption. The rare cases of suppuration in these glands require incision and disinfection. They are, however, as ominous as rare. There is but little pus, as a rule, but one or many local deposits of disintegrated gland cells and gangrenous connective tissue. The incisions must be extensive; the scoop and concentrated carbolic acid must be freely used. In these cases, hemorrhages may occur, some of them very difficult to manage. I have seen some of them terminate fatally. In these, carbolic acid must be avoided. Compression, actual cautery and acupressure have rendered good service. Solutions of iron must be avoided, for the scurf formed is a shield behind which deleterious absorption is constantly going on in such wounds, as it does in the uterus.

Besides sepsis, the great dangers in diphtheria are heart failure and strangulation. The latter has its own indication, to which I shall not allude to-day. Heart failure exhibits itself sometimes quite suddenly, but, as a rule, it is foreshadowed by a gradually increasing frequency, weakness of heart-beats and pulse, and the equal length of the intervals between the feeble systole and diastole, and diastole and systole. This equality is always a dangerous symptom. Heart failure is due to myocardial changes, besides the influences common to every fever. These may depend on the influence of the septic decomposition of the blood, and the ill nutrition of the heart-muscle depending thereon, or the direct diphtheritic changes of the tissue, or both. These changes and dangers set in, sometimes, at a very early period. Thus, whatever enfeebles must be avoided. Patients must be spared every unnecessary activity. They must remain in bed, without excitement of any kind, take their meals, and evacuate their bowels in a recumbent or semi-recumbent position; crying and worrying must be avoided; the room kept airy, and rather dark, so as to encourage sleep if the patient be restless. In no disease, except, perhaps, in pneumonia, have I seen more fatal results from sudden changes of posture, or from exertion. Unless absolute rest be enforced, neither physician nor nurse has done his or her duty.

The threatening feebleness of the heart yields a positive therapeutical indication. In no disease is the danger greater from the side of the heart, in no disease is the indication for sustaining and strengthening the heart more positive from the very beginning. Digitalis, strophanthus, sparteine, besides camphor, alcohol and musk, must not be postponed until feebleness and collapse have set in. It is possible or probable that they will appear; and it is certain that a cardiac stimulant will do no harm. It is safe and advisable to use them at an early date. That is particularly necessary when antipyrin or antifebrin is given. A few grains of digitalis, in a palatable and digestible form, may, or must, be given daily. When a speedy effect is required, one or two doses of from two to four grains are not too large, and must be followed by smaller ones. When it is justly feared that the effect of digitalis may be too slow, I give, with or without the former, sulphate of sparteine. An infant a year old will take one-tenth of a grain four times a day, as a matter of precaution, and every hour or every two hours, in an emergency.

Of at least the same importance as cardiac tonics are alcoholic stimulants. The advice to wait for positive symptoms of heart failure and collapse, before the life-saving apparatus is employed, is bad. There are cases which get well without treatment, but we do not know beforehand which they will be. No alleged mild case is safe until it has recovered. When heart failure sets in—and often it will occur in apparently mild cases, our efforts are too often in vain. Thus, alcoholic stimulants ought to be given early, and in large quantities, though amply diluted. There is no such thing as intoxication or danger from it, in septic diseases. A few ounces daily may suffice, but I have given ten ounces of brandy or whiskey daily, to save children who had done badly with three and four.

Coffee is a good stimulant for the heart. Camphor may be employed to great advantage for the same purpose. From five to twenty-five grains may be given daily, as camphor water, or in a mucilaginous emulsion, which is easily taken. It does not upset the stomach as ammonium carbonate is liable to do. When a rapid effect is aimed at, it may be employed subcutaneously in five parts of oil, which is milder and more convenient than ether.

But the best internal stimulant, in urgent cases, is Siberian musk, in powders, or with mucilage. When required at all, it ought to be given in sufficient doses and at short intervals. When ten or fifteen grains, administered to a child one or two years old, will not accomplish, within three or four hours, a return of a more satisfactory heart's action, the prognosis is very bad.

Besides exhaustion at the height of the disease, we have paralysis during convalescence, or intense anæmia long after apparent recovery. This anæmia may be general, or is local, and then mostly cerebral.

Diphtheritic paralysis, though of different anatomical and histological origin, yields in all cases a certain number of identical therapeutical indications. These are: The sustaining of the strength of the

heart by digitalis and other cardiac tonics. A child of three years may take daily, for a month, three grains or its equivalent; for instance, one grain of the extract. This is an indication on which I cannot dwell too much. Many of the acute, and most of the chronic diseases of all ages do very much better by adding to other medications a regular dose of a cardiac tonic. It is true that it is a good practice to follow the golden rule to prescribe simply, and, if possible, a single remedy only, but a better one to prescribe efficiently. A prescription paper with a single line on it looks well, but a readily convalescent or well man looks better.

Besides, there are some more indications: Mild preparations of iron, provided the digestive organs are not interfered with. Strychnia or other preparations of nux at all events. In ordinary cases, a child of three years will take an eightieth of a grain three or four times a day. Local friction, massage of the throat, of the extremities and trunk, dry or with hot water, or oil, or water and alcohol; and the use of both the interrupted and continuous currents, according to the known rules, and the locality of the suffering parts, find their ready indications. The paralysis of the respiratory muscles is quite dangerous; the apnœa resulting from it may prove fatal in a short time. In such cases, the electrical current used for very short periods, but very frequently, and hypodermatic injections of sulphate of strychnia in more than text-book doses, and frequently repeated, will render good service. I remember a case in which these and the occasional use of an interrupted current, and occasional artificial respiration by Silvester's method, persevered in for the better part of three days, proved effective.

Chloride of iron.—I am still, as I was in my first paper on diphtheria, in 1860, an advocate of the internal use of chloride of iron. Its mode of administration I have not changed much these twenty years. At a public lecture delivered before a New York audience, by an European authority, whose name has lately appeared a little more prominently in the newspapers than an American physician would wish, I was highly praised for giving a few drops of the tincture of the chloride of iron a few times a day. This eulogy I have always tried not to deserve, for the efficient method of its administration is not that. The chloride of iron is an astringent and antiseptic. Its contact with the diseased surface is as important as is its general effect; therefore, it must be given frequently, in hourly or half hourly doses, even every twenty or fifteen minutes. An infant of a year may take forty-five or sixty grains a day, a child of three or five years one hundred and twenty or one hundred and eighty. It must be mixed with water to such an extent that the dose is half a teaspoonful or a teaspoonful; a drachm in four ounces allows half a teaspoonful every twenty minutes. No water must be drunk after the medicine. As a rule, it is well tolerated. There are some, however, who will not bear it well. Vomiting or diarrhœa is a contraindication to persevering in its use, for nothing must be allowed to occur which reduces strength and vigor. A good adjuvant is glycerin; better than syrups. From ten to fifteen per cent. of the mixture may consist of it. Now and then, but rarely, it is not well tolerated either. When diarrhœa sets in, glycerin must be discontinued. Still, these cases are rare; indeed, the stomach bears glycerin very much better than the rectum. In the latter, the presence of a small dose of glycerin is known sometimes to produce large evacuations, a result appropriated and utilized by an advertising nostrum monger.

In connection with this remedy, I wish to make a remark of decidedly practical importance. I know quite well that recovery does not always prove the efficacy of the remedy or remedies administered. But I have seen so many bad cases recover with chloride of iron, when treated after the method detailed above, that I cannot rescind former expressions of my belief in its value. Still, I have often been so situated that I had to give it up in peculiar cases. These are such in which the main symptoms are those of intense sepsis, I should say such in which the iron and other rational treatment was not powerful enough to prevent the rapid progress of the disease. Children with naso-pharyngeal diphtheria, large glandular swelling, feeble heart and frequent pulse, thorough sepsis, and irritable stomach besides, those in which large doses only of stimulants, general and cardiac, can possibly promise any relief, are better off without the iron. When the circumstances are such as to leave the choice between iron and alcohol, it is best to omit the iron and rely on stimulants mostly. The quantities required are so great that the absorbent powers of the stomach are no longer sufficient for both.

Nor is iron sufficient or safe in those cases which are preëminently laryngeal. To rely on iron in membranous croup means waste and danger.

Mercury.—The first volume of *A System of Practical Medicine by American Authors*, which appeared in 1885, contains in an article on diphtheria, written in 1884, the following remarks on page 705:

"Not all cases of diphtheria are septic or gangrenous, nor are all the cases occurring during an epidemic of the same type. Some have the well-pronounced character of a local disease, either on the tonsils or in the larynx. The cases of sporadic croup, met with in the intervals between epidemics, present few constitutional symptoms, and assume more the nature of an active inflammatory disease, very much like the sporadic cases of fibrinous tracheo-bronchitis. These are the cases in which mercury deserves to have friends, apologists and even eulo-

gists. Calomel, 0.5–0.75 gramme (grs. viij–xij), divided into thirty or forty doses, one of which is taken every half hour, is apt to produce a constitutional effect very soon. Such, with minute doses of one milligramme (gr. $\frac{1}{60}$th) or more of tartar emetic, or ten or twenty times that amount of oxysulphuret of antimony, have served me well in acute fibrinous tracheo-bronchitis. But the mucous membrane of the trachea and bronchi is more liable to submit to such liquefying and macerating treatment than the vocal cords. The latter have no muciparous glands like the former, in which they are very copious. And while the tracheal pseudo-membrane, though recent, is apt to be expelled through a tracheal incision at once, that of the vocal cords takes from six days to sixteen or more for complete removal. Still, a certain effect may even here be accomplished, for maceration does not depend only on the local secretion of the muciparous glands, but on the total secretion of the whole surface, which is in constant contact with the whole respiratory tract. Thus, either on theoretical principles, or on the ground of actual experience, men of learning and judgment have used mercury in such cases as I have detailed above, with a certain confidence."

"If ever mercury is expected to do any good in cases of suffocation by membrane, it must be made to act promptly. This is what the blue ointment does not. In its place I recommend the oleate, ten or twelve minims of which may be rubbed into the skin along the inside of the forearms or thighs, or anywhere else, every hour or two hours, when those surfaces become irritated. Or repeated doses, such as mentioned before, will be useful, or hypodermatic injections of corrosive sublimate, in one-half or one per cent. solution in distilled water, four or five drops from four to six times a day or more, either by itself or in combination with the extensive use of the oleate, or with calomel internally. Lately, the cyanide of mercury has been recommended very strongly. I hardly believe that it will work more satisfactorily than any other equally soluble preparation. Within the past few years, the internal administration of bichloride of mercury has been resorted to more frequently and with greater success than ever before.

"My own recent experience with it has been encouraging, and so has that of some of my friends. William Pepper gave one thirty-second of a grain of corrosive sublimate every two hours in a bad form of diphtheritic croup, with a favorable result. But in this very bad case, desperate though it was—child of five years, respiration 70, pulse 160, large membrane, 'evidently from the larynx,' had been expelled before the treatment was commenced on the seventh day of the disease. The solution ought to be given in solution of 1 : 5000, and in good doses. A baby, a year old, may take one-half grain every day many days in succession, with very little, if any, intestinal disorder, and with no stomatitis. A solution of the corrosive sublimate in water is frequently employed of late as a disinfectant. It acts as such in a dilution of 1 in 20,000. As healthy mucous membrane bears quite well a proportion of 1 : 2000 or 3000, any strength between these extremes may be utilized. A grain of the sublimate in a pint or more of water, with a drachm of table salt, will be found both mild and efficient. As a gargle and nasal injection, it will be found equally good. But it has appeared to me that frequent applications give rise to a copious mucous discharge; hourly injections into a diphtheritic vagina become quite obnoxious by such oversecretion, which ceases at once when the injections are discontinued. Thus, when it is desirable not only to disinfect, but also to heal the diseased surface, the injections with corrosive sublimate appear to yield a result inferior to less irritating applications."

These remarks of 1884 constitute what I consider a great progress over the statements of my treatise on diphtheria, 1880, which are more cautious and negative. Extensive experience with the remedy increased my favorable opinion of its efficiency to such an extent as to induce me to publish a number of cases and conclusions in the *Medical Record* of May 24, 1884.

They have been amply justified by the observations of the last four years, so that I am fully prepared to commit myself to the following statements: My conviction of the utter uselessness of internal medication in laryngeal diphtheria, membranous croup, is strongly shaken. The mortality of 90 or 95 per cent. of the cases not operated upon has no longer existed these five or six years, in my observation. The above figures were by no means taken from small numbers. For, since 1860, I have tracheotomized more than 500, perhaps 600, times, have assisted in as many more operations, and seen at least a thousand case of membranous croup which were not operated upon at all. During the last six years, I have seen no less than 200 cases, perhaps many more. Amongst them recoveries have not been rare. In the practice of no less a man than O'Dwyer, I have seen two cases of general and laryngeal diphtheria in the same family, which got well without any operative procedure. Such recoveries have taken place at all ages, from four months upward. The uniform internal medication consisted in the administration of the bichloride of mercury. The smallest daily dose was a quarter of a grain. Half a grain daily, continued through five or six, sometimes eight, ten or even twelve days, has not been rare amongst children of from three to six years. The doses varied from one-sixtieth to one-fortieth of a grain, and sometimes more. They are given every hour. They require dilution in a tablespoonful of water or other compatible fluid, for instance milk, in order to be quite innocuous. They are not liable to produce gastric or intestinal irritation. When the latter occurred, it was generally found that by some mistake the solution was as strong as 1 : 2000 or 1 : 3000. In the few cases in which it did exist, or was believed to result from the

remedy, a few minims of camphorated tincture of opium administered with every dose, for a short period, proved sufficient to check it. The beneficial effect of the remedy depends greatly on the time of its administration. As a rule, such complete stenosis as necessitates surgical interference develops after days only. This necessity is often obviated by the remedy when given as detailed. When an operation is required after all, the treatment must be continued. I have never since 1863 seen so many cases of tracheotomy getting well as between 1882 and 1886, when the bichloride was constantly used as mentioned. Nor am I alone with these observations. I can name a dozen of New York physicians, some of whom have often performed tracheotomy, who can confirm the above statements from their own observations. Nor does the opinion of those differ who constantly perform intubation. I know that O'Dwyer, Dillon Brown and Huber have come to the same conclusions, the latter having been a successful tracheotomist before he earned his laurels with intubation.

My experience in regard to the efficacy of the bichloride of mercury is mainly gathered in cases of laryngeal diphtheria, and a limited number of fibrinous bronchitis. It is there where it has been particularly effective. Still I must not say that they were localized affections. These, with us, are but very scarce. Our cases of diphtheritic laryngitis are mostly decreasing, and complicated with either diphtheritic pharyngitis or rhinitis, or both. Not a few, mainly of the latter kind, exhibit constitutional symptoms, sepsis. But cases of that kind, also, I have seen getting well. One of the most interesting was that of a girl of seven years whom I saw a single time in consultation with Dr. J. Anderson. There was nasal and pharyngeal diphtheria, cervical adenitis and some laryngeal stenosis. I recommended an hourly dose of one-fortieth of a grain of bichloride, which she took for ten days, also nasal injections of the same, one grain to a pint. They were made hourly for many days, and altogether continued for more than a fortnight, for the patient lived so long, and is still alive. She swallowed almost all the nasal injections, and great was my surprise when, after some weeks, I received the report of the case, and learned that about twenty grains of the bichloride had found their way into the stomach of the little girl. She lived, had but little stomatitis, and hardly any intestinal irritation. If the case does not prove anything else, it proves this, that even desperate cases will get well; this case got well with the bichloride of mercury, and resembles all the other cases in this, that after the rational and careful administration of solutions of hydrargyrum bichloride, local mercurial symptoms about gums, mouth, pharynx and intestines are extraordinarily rare in infancy and childhood.

ON GOUTY SORE THROAT.[1]

By HARRISON ALLEN, M.D.,
of Philadelphia.

By the term "gouty sore throat" is meant the presence of distress, in or about the pharynx or larynx, dependent upon the existence of gout in the system. Such a clinical condition is mentioned by writers, but, for the most part, in connection with metastasis. For example, an affection of the pharynx is known to be of a gouty nature when its announcement is connected with the sudden disappearance of gout elsewhere.

The recognized forms of sore throat which relate to diathesis are the rheumatic, the tubercular (probably including the so-called scrofulous), and the syphilitic. Schech includes a scorbutic form. In the tubercular and syphilitic varieties a lesion or local deposit would be requisite to a diagnosis. In the rheumatic form this is not the case, nor is it so in the gouty. Schech[2] does not admit the gouty form. It is accepted by Prosser James.[3] The account given by Morell Mackenzie relates only to metastasis. Lennox Browne[4] agrees with Schech in the main, though acknowledging that cases are seen in which the administration of gouty specifics is a necessary adjunct to the local measures. This writer accepts a gouty variety of perichondritis.[5] That Scudamore[6] may be said to have recognized sore throat in connection with gout is likely, if we correctly interpret the following language:

"A cough with much mucous secretion in the tracheal membrane sometimes precedes the fit; yielding when the gout becomes fixed, *occasionally continuing with the other symptoms*. This description of cough is to be distinguished entirely from the recent catarrhal cough and symptoms which sometimes usher in a paroxysm, when exposure to wet and cold has been the exciting cause. The mucous membranes of the parts which have been affected with disease, or which are prone to disease, *are much disposed to acquire a state of unhealthy action*; in apparent sympathy, either with that condition of the constitution which borders on a fit of the gout, or in which the *disease is threatening its return, but does not develop itself*."

The literature of gouty sore throat is scanty. Musgrave[7] is accredited with a good account of the condition. The following detailed examples, which have been diagnosticated gouty apart from metastasis, are the only ones known to the writer. It will be seen that they are of doubtful value. In a case reported by J. de Lagoanère[8] under the title of "an-

[1] Read before the meeting of the Pennsylvania State Medical Society, June 7, 1888.

[2] Diseases of the Mouth, etc. [3] Sore Throat, 1878, 120.

[4] The Throat and its Diseases, 1877, 104.

[5] Ibid., 299.

[6] A Treatise on the Nature and Cure of Gout and Rheumatism, etc. Amer. ed., 1819, 10.

[7] De Arthride Anomala.

[8] Les Angines rhumatismales et goutteuses Thèse, Paris, 1876, p 50

gine goutteuse" an account of septicæmia is given. It occurs in a man thirty-seven years of age, without gouty antecedents, and by occupation a house painter.

The patient is admitted into the Hotel Dieu suffering from acute inflammation of the right ankle, tarsus, and the joints of the great toe. The fourth day after admission a phlegmonous inflammation of the pharynx is abruptly developed, without metastasis; an abscess is detected which is spontoneously ruptured upon the seventh day. Retention of urine, albuminuria, endocarditis, and empyema ensue, and the patient dies on the fourteenth day.

Garrod describes a form of gout which is often seen among workers in lead, but in connection with gout already established. The case narrated belongs, if to the group of gout cases at all, in such a subdivision. The pharyngeal complication which preceded the fatal termination, can scarcely be embraced under the head of "angine goutteuse."

Lasègue appears to have recognized the coexistence of sore throat with gout. But the description by Lagoanére[1] of a case of Lasègue[2] does not give the writer the impression that it is similar to any of the instances upon which this paper is based.

A merchant, aged thirty-eight, is treated for a sore throat. No exact gouty history is given. The mother of the patient had suffered at the menopause from painful and swollen joints of the fingers. It is thought that these swellings are *either* rheumatic or gouty. There is no description of gouty attacks in the patient. An account of chronic pharyngitis is detailed In the treatment neither colchicum nor other anti-lithic appears to have been administered.

I have thought a study of sore throat which, while independent of metastasis, was found in gouty subjects, and which yielded only to remedies for gout, might prove of interest.

No one group of symptoms is to be expected in a disease so protean as is gout. The subjects of gouty sore throat have been almost always in middle life. A disposition to gout has been traced through several members of the family in all but a single example.

The distress may be confined to the throat, or be referred to it from a catarrh of the nasal passages. It is not apt to develop during an acute attack, but to occur in those who are prone to neuralgic forms of irregular gout—especially of the viscera—or in persons of gouty habit who are careless in their diet. Thus dyspepsia and constipation are of frequent occurrence. The tongue is often persistently furred or pasty.

It goes without saying that a sore throat occurring in a subject who inherits or acquires gout is not of necessity of a gouty nature. The judgment of a careful observer is alone required to distinguish between the essential complaint and its counterfeits.

The only ailment with which gouty sore throat may be confounded is the irritable throat of lithæmia. Lithæmia occurs at any time of life. It is often dependent on the diet, and can be controlled by the withdrawal of wines and nitrogenous food, and by increasing the activity of the kidneys. In young persons, the subjects of lithæmia, the pharynx presents a definite appearance. The mucous membrane is of a uniform red color, the secretions are abundant, and the tonsils are tumid. The health is good, often, indeed, robust. In older persons the appearances are less constant. The tonsils are often small and concealed, and the parts bathed in secretion. Pain is usually not severe, and is referred to the pharynx and not to the muscles at the side. In true lithæmia, the gouty history is absent.

Perhaps the best guides to a gouty condition are furnished by the permanent teeth. While not essential to a diagnosis—for in a marked instance known to the writer, the teeth do not conform to the rule, it is very generally found that the teeth are large—the antero-posterior diameters being especially exaggerated, the enamel thick and of a yellowish color. The peculiarities of gouty teeth are confined to the incisors, canines and bicuspids. The crowns are often marked by transverse lines, and the bases of the lingual and palatal surfaces are apt to be gibbous. The cutting edges of the crowns of the incisors are without serrations. A disposition exists for recession of the gums from the necks of the teeth.[1]

In the local treatment of gouty sore throat, it is only necessary to remember that all agents must be soothing in character. Operative procedures are not well borne. If they are demanded, they must follow the use of general remedies.

The constitutional treatment of gout need not be entered upon here. As is well understood, no single plan is adapted to all cases. In the main, preparations of colchicum can be relied upon to assuage the disease, careful attention being directed to the digestive and urinary functions. Most of the cases are improved by omitting meat from the dietary. Sweet wines and spirits are to be avoided.

Case I. *Irritable pharynx, associated with neuralgic pains of gouty origin.*—Miss A. B., aged forty-five, reported through the courtesy of Dr. James Tyson, March, 1888, complaining of neuralgic pains in the muscles of the side of the neck, a burning sensation in the tongue, and constant pain in the ears. The hearing was normal, and the tympanic membranes were healthy. The pharnyx was excessively irritable, and very susceptible to the presence

[1] Ibid., p. 47.

[2] I have examined Lasègue's Clinical Memoirs, but do not find this case. Neither is it contained in E. C. Lasègue's Traitè des Angines.

[1] Fothergill (Vaso-renal Changes *versus* Bright's Disease, 1887, p. 85) describes the gout-tooth as "worn down and blunted at the edge; at first slightly, subsequently till they look more like pegs than edge-cutting instruments."

of hot fluids; the amount of heat required to warm the rhinal mirror would cause complaint, if by chance the edge of the instrument touched any part of the pharynx. The basi-lingual glands were large. The base of the tongue was occupied by a persistent white fur. The patient had suffered from attacks of aural and pharyngeal pains for several years; they were always worse during the inclement March season. The teeth were large, of a yellow color, but no more worn than might be expected at forty-five years. The patient was a sufferer from atonic dyspepsia. Gout had been in the family on the paternal side through a number of generations. The father had been for years a sufferer and a confirmed invalid from this cause. The pains yielded promptly to the exhibition of colchicum, after they had resisted all other treatment.

CASE II. *Catarrhal pharyngitis and retained tonsil-secretion in a subject of gouty inheritance.*—Mr. C. D , aged thirty-four, was referred to me in February, 1888, by Dr. D. Murray Cheston. She had suffered for five years from a sensation of "throat-closing," which was due to mucus collecting in the naso-pharynx and passing down over the lower portion of the pharynx. Additional sources of irritation existed in an abnormal state of the tonsils. The patient had had in all four attacks of catarrhal laryngitis, and was liable to distressing cough when walking against a high wind. The pharynx was very red and irritable, but not swollen. The tongue was moderately furred at the base, but clean for the most part. The tonsils were not enlarged, but of firm consistence. The right tonsil was concealed.

After a treatment of three weeks, the case not progressing satisfactorily, an inquiry was made into the family history, when a gouty history was traced through both maternal and paternal lines. The teeth were observed to be large and firm, and of the characteristic gouty type. The lateral borders of the central maxillary incisors were unusually thick. The lateral maxillary incisors were congenitally absent. Out of six members of her immediate family this peculiarity was noticed in four.[1] Wine of colchicum was now administered, but interfered with digestion. The bowels were kept soluble by sulphate of magnesia. Lithia water was ordered, the diet guarded. Improvement soon was announced. The treatment was interrupted by a general catarrhal attack with fever, during which the family physician, following up the treatment, administered the bromide of lithia.

Upon reporting for further local treatment the condition was found greatly improved. The cause of local pharyngeal tenderness was now carefully inquired into and a number of tonsil-pellets dislodged from both tonsils. The pharyngeal tenderness disappeared soon after these explorations.

Mrs. D. is now recovered from the throat ailment —the "closing" sensation has disappeared. She has been comfortable during our recent trying spring weather.

The following case illustrates the most common form of gouty sore throat—namely, a form in which the gouty habit is conjoined with a moderate amount of indulgence in the pleasures of the table.

CASE III. *Pharyngitis in a male subject of gouty habit.*—Mr. A. T., aged forty-five, a lawyer by profession, of gouty inheritance, suffered from continuous sore throat. The parts were red, moderately swollen, and excessively irritable. The tonsils were small but hard, the right body being retroverted. The voice was husky, and the patient annoyed by futile efforts to clear it. The patient was liable to attacks of herpetic tonsillitis. The habit was full, the trunk large, and the neck short. The teeth were not characteristic. The patient was aware of the nature of his distress. He was always worse after times of more than usual indulgence, when he would experience pain in the right toes. He was restless under the restrictions of treatment, and after remaining under care for a few weeks, ceased to report.

CASE IV. *Chronic nasal catarrh and acute pharyngitis in a male subject who suffered from acquired gout.*—Mr. G. H., aged fifty-five, reported in September, 1880, has suffered from attacks of gout in the feet for fifteen years, which have always yielded to "Lavilles' gout fluid." The patient had an attack in January. The duration of the nasal catarrh was about eighteen months. For one week before reporting he had an acute sore throat with an attack of coughing. The catarrh was much better than was usual and the sore throat appeared to have no connection with it. The sore throat was associated by the patient with the gout.

The throat structures were purplish-red in color and œdematous; a line of gray infiltration was distinguishable on the sides of the uvula. The sense of smell and taste were slightly impaired. The appearances within the nasal chambers were characteristic of chronic nasal catarrh. The treatment consisted in reducing the size of the intumescent membranes. They presented no features which need be recorded.

CASE V. *Pharyngitis in a male subject who was syphilitic and at the same time gouty.*—Mr. I. J., aged thirty-six, reported in January, 1879. He was a lawyer by profession, and had a history of inherited gout, and had suffered from three acute attacks involving the great toe of the right foot. He is also a sufferer from hay-fever. The gums were receded from the necks of the teeth. He had an abscess in the right maxillary sinus two years ago. In 1868 the patient had synovitis of the shoulder, the knee of the left side, and the right toe which was probably of a syphilitic nature. He had a lesion of constitutional syphilis in the form of a small serpiginous ulcer on the roof of the mouth beginning near the first bicuspid tooth of the right side, extending to the middle line, and thence deflected along the raphè to the middle of the hard palate. The ordinary appearances of chronic nasal catarrh and pharyngitis were present.

[1] The absence of the permanent lateral incisors of the upper jaw has been associated so frequently by the writer with constitutional impression that it may be included among the minor signs of a gouty, syphilitic or strumous state.

VESICAL CALCULUS WITH CHYLURIA.[1]

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I am led to report the following case of vesical calculus in a female because of the features of unusual interest which it presented.

Mrs. J. S., aged nineteen, of Italian birth, but now residing in this city, felt very ill after her first confinement in July, 1887. She complained greatly of pain in her back, and was rapidly losing strength. An irregular Italian practitioner was first consulted, who pronounced the case one of kidney disease.

About the 20th of September, 1887, she having become very weak and discouraged, Dr. A. A. O'Daniel, of this city, was requested to take charge of her case. He found her confined to her bed, in a feeble condition, and unable to take sufficient nourishment. She was occasionally affected with vomiting. There existed a painful spot over the left kidney, decided tenderness in the region of the ovary of the same side, and pain which ran down the inside of the corresponding thigh to the knee. An examination *per vaginam* revealed nothing abnormal about the uterus or its appendages. She stated that she "passed milk from her bladder instead of urine." The specimen which was obtained had the appearance of milk. When it was allowed to stand twenty-four hours, it presented the same peculiar appearance as before. No sediment was noticeable. By repeated examination a small amount of pus was found, but by no means sufficient in quantity to account for the emulsive character of the urine, which, after standing for several days, showed a scum on top. Upon agitating the urine with ether a quantity of fatty matter was separated, leaving the residue comparatively clear.

The case was now regarded as one of chyluria, and acting upon this diagnosis Dr. O'Daniel administered thirty grains of gallic acid daily, with very satisfactory result. The urine became almost clear, but if the drug was omitted for a day, its milkiness would return, and when, on account of an irritable condition of the stomach, the use of gallic acid was for a time discontinued, the urine became so thick that it could scarcely be voided, and the pain in the back increased in severity.

By the administration of diuretics and the application of counter-irritants to the back at this time, a degree of relief was afforded, but the urine remained milky. The patient's temperature at different periods ranged from 99°–102° F. Gallic acid was again resorted to, but in small quantity, and with an occasional dose of quinine. The urine thereafter presented somewhat different characters from those which had been noticed before. On standing four or five hours its emulsive character was less thoroughly preserved, and its constituent parts began to separate.

Dr. James Tyson saw the case in consultation, on October 26, 1887. The patient's temperature was then 102°, and the urine slightly milky. A specimen which had stood from the previous night contained some deposit and showed only slight turbidity. The possibility of the existence of filariæ having been discussed, a few drops of blood were taken from the woman's finger for microscopic examination, but no filariæ were found. Pus was detected in the urine.

When the gallic acid was again discontinued, the urine once more became so thick that it could be passed only with difficulty, and now showed an increased quantity of pus.

When, for the first time, the medical attendant by means of a double current catheter washed out the bladder with a solution of boric acid, he was surprised to discover a stone of large size in that viscus. Tonics were administered and the bladder was washed out daily with the above-named solution.

On November 28th, the patient being a little stronger and the urine having become almost clear, I removed the stone, assisted by Drs. O'Daniel and J. B. Deaver, the latter giving the ether. The urethra was dilated sufficiently to allow the introduction of the index-finger, which came in contact with a calculus too large to be removed unbroken through the natural canal. A pair of forceps was introduced through the dilated urethra, and a portion of the calculus crushed off. On reintroducing the finger, the bent end of a hairpin about an inch in length was felt among some broken débris of the stone. A little delay was occasioned in extracting this forked-shape wire without lacerating the bladder or urethra. A number of stony fragments were removed, and the bladder well washed out. But some difficulty was now experienced in bringing away an olive-shaped fragment measuring an inch and a quarter in length and three-quarters of an inch in its greatest diameter, and having running through it lengthwise one of the wire prongs of the hairpin, two and a quarter inches long. The free or projecting ends of the wire were buried in the coats of the bladder holding fast the remaining large fragment of the stone, of which the wire formed an elongated nucleus.

By an examination through the vagina, one of the points of the wire buried in the tissues could be readily felt. With only the index-finger in the bladder, this end of the hairpin was disengaged and brought toward the urethra, through which by means of forceps it was extracted with its stony accretions still fastened about it.

The patient recovered well from the effects of the ether and the shock of the operation. On the first evening her temperature rose to 102°, but sank on the following day to 99°, and did not again rise. In a very few days she was able to retain her water perfectly. She was kept in bed for ten days; in a few weeks she gained forty pounds in weight, and has since remained entirely well.

The stone, including all the fragments and lesser débris, weighed five hundred and forty grains. It was composed of mixed phosphates, urates, and fat.

No information could be gained from Mrs. S. as to how or when the hairpin got into her bladder. From her mother it was learned that the patient began complaining of pain in her back and of feeling

[1] Read before the Philadelphia Academy of Surgery.

ill about four years before her marriage, but that no particular discomfort was complained of during her pregnancy.

In regard to the diagnosis of chylous urine in this case, I would add that, after repeated conversations with the medical attendant on that point, I cannot but adhere to its correctness. In this I am strengthened by the report of a chemical analysis of the calculus, made by Dr. Lawrence Wolff, in which he states that he found fat; which was a substance he had failed to find in the examinations of numerous other vesical calculi, although it was fair to assume that some of the patients from whom they had been taken had had pus in their urine.

The only explanation I can offer for the existence of the chyluria is that the lymphatics of the bladder were wounded by the points of the hairpin, and that a lymphatic varix may have existed, causing a direct leakage from that system and producing a non-parasitic chyluria.

MEDICAL PROGRESS.

A Case of Complete Recovery after Removal of the Larynx.—The Paris correspondent of the *Lancet* writes in that journal of April 28, 1888, that at No. 22, Rue de la Banque, Paris, may be seen a man (a wine merchant) who has been living without a larynx for the last two years. In April, 1885, he consulted Dr. Fauvel, the celebrated laryngologist, on account of severe dyspnœa, to which he had been subject for some time. Dr. Fauvel diagnosed an osteosis with œdema and ulceration of the larynx, and proposed to perform tracheotomy on the man. This he refused to submit to, and consulted other physicians; but, as he was getting worse and the danger of suffocation became imminent, he decided upon the operation. Tracheotomy was practised on February 13, 1886; but, as this did not afford much relief, Dr. Péan on February 27th—that is, a fortnight afterward—performed ablation of the larynx. This was done at the hospital, and on March 19th he was able to eat, and left the hospital cured and apparently in good health. As newspaper reports of medical cases are not always very correct, I resolved to call at the residence given, and verify the statement published. I saw the man in his shop (a public-house), serving his customers as if nothing had happened to him. He is thirty-seven years of age, but looks about fifty. At my request he very willingly showed me his throat, where I perceived the canula which was introduced by Drs. Péan and Fauvel, and whenever he had to answer my questions he closed the orifice of the canula with his finger, and, although his voice was not very audible, yet he spoke distinctly. He has not changed his habits, but eats and drinks as much as he ever did. As far as I could learn, the man had no antecedents of syphilis or tuberculosis, but had been frequently treated for "colds on the chest."

Rattlesnake Bite Successfully Treated by Permanganate of Potassium.—Gaston, of Atlanta, reports the following case in the *Brooklyn Medical Journal* for May, 1888: As the patient placed his hand on a crate he felt a stinging sensation in one of his fingers, and saw that a huge snake had fastened its fangs in his flesh. In a few seconds the hand and arm began to swell, and he was brought to Dr. Gaston's office. On examination, he found that the fang of the snake had penetrated the anterior portion of the end of the third finger, and a ligature was tied tightly around the finger below the first joint immediately, which strangled the circulation. The patient came directly to the office, only a few blocks off, and so soon as a solution of permanganate of potash, grs. ij. in distilled water, f℥j, could be made by the nearest druggists, the quantity contained in an ordinary hypodermatic syringe was injected, by passing the needle through the orifice left by the fang. The ligature was then released, and the patient made great complaint of the pain in the part, from the medication, for a few minutes. There was a dusky, ashy hue extending around the point where the injection penetrated, which gradually passed away, and in the course of fifteen minutes there was no further notable effect of the bite or of the injection. His brother reported that some swelling of the finger and arm occurred during the following day, but it was not requisite to visit him again. It is stated that the patient took aqua ammonia in doses of fifteen drops every hour during the afternoon of the bite, but there were no indications of the effects of the poison requiring this remedy, and it was only used from prudential considerations.

Tannin for Burns of the First Degree.—Mikalsky uses tannin in burns of the first degree, as follows:

Tannin,	
Alcohol	āā ℥ i
Ether. sulphuric.	℥ 7½

For local application.—*Revue de Thérapeutique*, May 1, 1888.

Kephir, as Infant Food.—Taylor reports, in *The Archives of Pediatrics* for May, 1888, his use of kephir among children as follows:

1. If the infant is less than a month old, give it diluted one-third with water. This proportion may be gradually lessened until at from four to six weeks of age it is given undiluted.

2. It should be fed slowly from a simple, easily cleansed nursing-bottle.

3. When used, it should constitute the only food, except in children over a year of age, when crackers, toast, etc., may be given with it, and one meal a day can with advantage consist of oatmeal mush or other farinaceous food.

4. For young infants it is best adapted when given in its young or weak state. As the child grows older the medicine or even the old kephir may be used.

Its greatest usefulness is in cases of infantile atrophy and of chronic diarrhœa, and it will undoubtedly prove to be a valuable addition to our resources in the care of hand-fed infants.

A New Antiseptic Soap.—The *Lancet* of May 12, 1888, writes that until quite recently a satisfactory soap containing as an antiseptic one of the salts of mercury has been difficult to prepare on account of the alkaline soap

refusing to yield a good lather, oleate of mercury being formed—a compound which has little or no germicidal action. One of the most powerful antiseptics of the mercury salts is, as is well known, the bichloride. Moreover, it is cheap, and easily soluble, but it has the disadvantage of being extremely poisonous and easily reduced by albuminoid matter, with which it combines, thus being rendered inactive. In a paper recently read before the Society of Chemical Industry, in Glasgow, by John Thomson, the solubility of the red biniodide of mercury (which is claimed to be even a more powerful antiseptic than the bichloride) in iodide of potassium has been made use of. A soap can thus be easily prepared containing a certain proportion of the biniodide in a soluble form. It is stated to be permanent, having no tendency to separate, and to be more germicidal in its properties than any other antiseptic soap yet known. Experiments were made to demonstrate this. Sterilized silk threads were suspended in a solution of the biniodide soap for ten minutes, after being saturated with solutions containing well-known microörganisms, amongst which were the streptococcus scarlatinæ (Klein), bacillus subtilis, orange sarcina, white bacillus from Tweed water, organisms from putrid urine, the micrococcus of osteomyelitis, aspergillus nigrescens, spores from various fungi, yellow micrococcus from pus, putrefactive organisms, bacterium termo, and bacillus scarlatinæ (Edington). The threads were then carefully washed to remove the soap, and placed in sterilized gelatine in the ordinary way. The threads were controlled by first sterilizing, and then plunging into nutrient gelatine; if no growth occurred, they were accepted as being fit for use in the experiment. Washing the threads previously contaminated with organisms two or three times carefully with distilled water was shown by experiment not to remove the organisms, for on being placed in the gelatine, growth readily took place. The results, as shown in tables, are very remarkable. In all the experiments, with a few very uncertain exceptions, growth of the organisms was completely prevented, even after the lapse of four days. Similar experiments made with "carbolate of mercury" soap showed it to be less powerful as a disinfectant, and much slower in its germicidal action. In experiments carried out in the same manner with other antiseptic and ordinary soaps, it was shown that the growth of the organisms in many cases was not prevented. The importance of such a soap in medical and sanitary science is very obvious. The biniodide soap has been used in the treatment of eczema with well-marked success, especially where the irritation is due to the fermentations of accumulated secretions, the fermentation being set up by microorganisms. It has also met with similar success when used in parasitic skin diseases, such as favus and ringworm. As a parasiticide, too, the importance of its application to patients during the period of desquamation in scarlet fever is evident.

Hydrofluoric Acid in Pulmonary Phthisis.—Dr. de Giacoma, of Berne (*Correspondenz-Blatt für Schweizer Aerzte*, March 1, 1888, p. 142), has tested the treatment in eight advanced cases of his own. He simplified the Seiler-Garcin method in so far that a mixture of one hundred grammes of fluoric hydrogen with three hundred grammes of water was heated in an open leaden vessel by means of a spirit lamp. The patients sat around the vessel and inhaled the vapors for an hour daily. Dr. de Giacomi's experience was not so favorable as that of the French observers. In six of the eight patients the result was absolutely negative; in a seventh some temporary improvement of appetite and decrease of dyspnœa were observed; in the remaining case a striking relief of all symptoms ensued after the very first sitting. The author, however, reasonably enough, hesitates to attribute such an extraordinary and sudden change to the treatment employed; the improvement might have been purely accidental. At all events, he thinks that the method deserves a further and more extensive trial. The inhalation does not cause any discomfort to the patient. The only drawback which he mentions is that window-panes gradually become opaque under the influence of hydrofluoric vapors. As the acid has a violent caustic action on the skin, Dr. de Giacomi recommends the utmost caution in manipulations with the solution. Dr. Collon employed the method in two cases of advanced tuberculosis with high fever and extreme emaciation, and did not see any good beyond some amelioration in respect of sleep.—*British Medical Journal*, April 28, 1888.

An Anæsthetic for Minor Operations.—The *Revue de Thérapeutique* of May 1, 1888, gives the following convenient mixture:

Chloroform,
Spirits of wine,
Cologne water . . . . equal parts.

To be inhaled for transient anæsthesia.

Micro-organisms in Surgical Wards.—At the last Congress of Italian Surgeons, Durante reported experiments performed, at his suggestion, by his assistant, to determine the presence of germs in the air about the bed of a surgical patient, and in the ward. It was found that the greatest number of germs were present about forty inches above the borders of the bed; in all other directions the number of germs greatly decreased. Culture materials placed beneath the bed and about the bottoms of the neighboring walls, remained frequently sterile. The germs most frequently found were *staphylococcus aureus*, *streptococcus of erysipelas*, and Fränkel's *pneumococcus*. —*Deutsche medicinische Wochenschrift*, May 3, 1888.

A Simple Operation for Lacerated Cervix.—Herrick, in the *Medical Record* of May 26, 1888, reports a simple method of closing a lacerated cervix as follows:

The lacerated edges of the cervix are denuded as usual, care being taken that they are properly coapted; then, instead of introducing sutures, a wide elastic rubber band, shaped like the cervix, and large enough to cover the whole os and neck, with the exception of a hole in the end for the secretions to pass through, is slipped over the os, while the lacerated edges are held together by a pair of tenaculum forceps, over which the band is first passed; the band being wide and covering the whole neck, it keeps up equal pressure upon the bloodvessels, thus preventing enough blood getting into the parts at any one time to produce inflammation or swelling, and, as a natural sequence, union takes place much sooner than it otherwise would. The introduction

of sutures is often followed by inflammation, and when suppuration follows there is non-union, which is prevented by the use of the elastic band.

The advantages of this method are: 1. As about all the pain experienced during the operation is from the introduction of the sutures, if they are not introduced there is little pain, and hence an anæsthetic may be dispensed with. 2. If the patient is not etherized it is not necessary to have professional assistance, and one can operate on patients that would not listen to such a proposition if strange physicians were to be present. 3. The parts are kept in just as close contact, and union takes place just as soon. 4. There is less danger of inflammation. 5. There are no stitches to remove. 6. In slight cases patients can be operated upon without their being obliged to keep their beds for a single day, or their knowing they are undergoing an operation.

Cerebral and Spinal Abscess Successfully Drained.—Ruggi, at the Congress of Italian Surgeons, reported two interesting cases, as follows:

The first was that of a healthy workman, aged twenty, who received a severe blow upon the left parietal region, followed by paralysis of the right arm, and later, by convulsions. Craniotomy revealed a splinter from the internal table of the skull perforating the dura mater; the brain was contused, and blood and pus were evacuated. The case progressed to comparative recovery without fever.

The second case was one of præ-vertebral abscess in the region of the ninth and tenth dorsal vertebræ. Ruggi resected a sufficient number of ribs, removed the transverse process of a vertebra, and evacuated pus and a fragment of bone from the vertebral canal. Recovery followed.—*Deutsche medicinische Wochenschrift*, May 3, 1888.

A Prescription for Sea-sickness.—Rouquette prescribes:

Antipyrin.	gr. 75.
Cocain. hydrochlorat.	gr. 1½.
Caffein.	gr. 4.
Strych. sulphat.	gr. $\frac{1}{32}$.
Cognac	℥ 2½.
Aquæ destillat.	ad ℥ 25.

A teaspoonful before embarking, followed by two during the twenty-four hours: when at sea, three teaspoonfuls daily.—*Revue de Thérapeutique*, May 1, 1888.

Anatomical Differences in the Perinea of White and Colored Women.—Dr. Rafael Weiss, writing in the *Revista de Ciencias Medicas* of Havana on the different position occupied by the vulva in white and colored women, states that, according to his measurement, made on colored multiparæ, the average distance from the coccyx to the fourchette is 2.18 inches, and that between the fourchette and the symphysis 2.65 inches, the anus and fourchette being 0.7 of an inch apart. Comparing these with the measurements given by Föster for European multiparæ—viz., 2.8, 1.8, and 0.8 inches,—it is evident that the vulva occupies a distinctly lower position amongst negresses than it does amongst Europeans. Dr. Weiss's own measurements of Europeans do not differ very widely from Föster's. A very low position he found quite exceptional amongst white women, while a very high one was not uncommon, the coxi-vulvar distance being in some cases as much as 3.4 inches. With women of unmixed negro blood, on the other hand, he never saw a case where the position was high, though it was sometimes so low that the fourchette occupied the position usually held by the anus in white subjects. The consequence of these differences is that in colored women the period of perineal distention in parturition is much shorter and easier than amongst white women.—*Lancet*, May 5, 1888.

Smokers' Vertigo.—Dr. Decaisne recently investigated a number of cases of vertigo in smokers. Out of sixty-three patients, forty-nine were between fifty and sixty-six years of age. More than half of them suffered in addition from digestive troubles, with constipation alternating with diarrhœa, insomnia, palpitations, dyspnœa, and diuresis. In a third of the number there were marked intermittence of the pulse and granular pharyngitis, while others suffered from aphthæ, amblyopia, etc. Thirty-seven were persons who smoked habitually on an empty stomach, and these suffered from vertigo, principally in the morning. The vertigo generally coincided with suppression of perspiration and diminished excretion of urine. The treatment consisted mainly in regulating or suppressing the cause, but thirty-three out of thirty-seven patients ceased to suffer on merely refraining from smoking on an empty stomach.—*Medical Press*, April 25, 1888.

Repeated Typhoid Fever.—Eichhorst has collected the statistics of 666 cases of typhoid, treated at Zurich during three years time. He found that a second attack occurred in 4.2 per cent. (twenty-eight persons). Susceptibility to typhoid infection was not destroyed by a first or second attack; cases of three and four times repeated infection were observed. The mortality of repeated attacks was the same as those of first illness, and the severity of the symptoms was the same. Men are more liable to repeated attacks of typhoid than women.—*Correspondenz-Blatt für Schweizer Aerzte*, May 1, 1888.

Antipyrin Locally in Gonorrhœa.—Audhoui prescribes:

Aq. rosæ,	
Aq. lauro-ceras.	āā ℥ 3⅛.
Antipyrin.	gr. 75.
Zinc. sulphat.	gr. 7½.

For urethral injection.—*Revue de Thérapeutique*, May 1, 1888.

Permanganate of Potassium Locally in Diphtheria.—Mason, in the *Brooklyn Medical Journal* for May, 1888, writes that a solution of permanganate of potash, used in the form of a spray through the atomizer, has given him more satisfaction and better results than any other drug so used. A stock solution is prepared of potas. permanganate, ℥ij to distilled water ℥iij, or grs. v to ℥j; ℥j of the solution is added to about ℥jss or ℥ij of water, the average capacity of the atomizer bottle. It is then ready for use as a spray, in the manner already indicated.

The first notable effect is the almost immediate arrest of the fetor exhaled by the patient; and when once this is corrected and the disinfection properly kept up, it will not recur during the treatment.

The Disinfection of Rooms Occupied by Infectious Cases.—SWEETING, Superintendent of the Western Fever Hospital, Fulham, describes his method of disinfection as follows; The wards of this hospital, the walls of which consist partly of brick piers and partly of corrugated iron lined by felt and matchboard (in that order from without inward), have over and over again been used, after disinfection, successively for smallpox and for febrile diseases of various kinds—e.g., scarlet fever, measles, diphtheria, enteric, etc. In no case whatever has the preceding disease affected the new occupants of the ward. The plan consists in free fumigation by nitrous fumes (produced by the action of nitric acid on copper filings), followed by thorough cleaning by carbolic soap and water of all wood and iron work, and by distempering the brick portion of the wall of the ward.—*Lancet*, May 5, 1888.

The Treatment of Fissure of the Anus.—CRÉQUY has secured good results by instructing his patient to empty the bowels thoroughly by injections every morning, after which the surgeon lays in the fissure in the mucous membrane of the anus a pledget of lint soaked in a solution of chloral, one to five. This remains until it is expelled when the bowels move on the following morning, when another is inserted.—*Gazette de Gynécologie*, May 1, 1888.

Jambul in Diabetes.—OLIVER reports, in the *Lancet* of May 5, 1888, his use of jambul as follows:

Jambul was recommended a few months ago as a cure for diabetes mellitus. The powdered seed was credited with having the property of diminishing the secretion of urine and of arresting the formation of sugar. Four patients suffering from diabetes have been treated by me with powdered jambul. I began with five-grain doses thrice daily, and gradually increased the dose to fifteen grains. Two of the patients died, both from coma; the other two are still alive, but are no longer taking the drug. It cannot be said that any one of them received the slightest benefit. The daily amount of sugar passed out of the system was not diminished, thirst was not in any way abated, the daily discharge of urine remained as before, and the weight of the body was not increased. In one of the cases, strange to say, two days after taking the jambul the daily elimination of sugar fell from 4000 to 600 grains, but on the following and succeeding days the amount rose, and by degrees increased until it reached the sum eliminated before the drug was administered. Arterial tension was not in any way affected by the drug.

Tolerance of Bacteria by the Lining Membrane of the Uterus.—STRAUS and TOLEDO, at a recent meeting of the Academy of Sciences of Paris, reported experiments upon animals of various species, which had recently given birth to young by normal parturition. They introduced into the uteri of such animals large numbers of microbes ordinarily pathogenic to them, but with infection. Only the microbe of chicken cholera proved infective. The experimenters offered no explanation of this interesting phenomenon.—*Gazette Hebdomadaire*, April 20, 1888.

The Treatment of Enlarged Prostate by Electrolysis.—At a recent meeting of the Berlin Medical Society, CASPER reported cases of hypertrophied prostate treated by electrolysis, by the following method:

He first experimented upon animals to determine whether the destruction of the tissue of the prostate would cause disturbance in the animal's general health. Finding that electrolysis upon these tissues was followed by no ill effects, he operated upon four patients by placing a broad electrode from a battery of twelve cells, furnishing the constant current, over the pubes; a point for puncture was selected by examining the prostate by the finger in the rectum, and a needle was introduced into the prostate through the rectal wall. The needle was connected with the negative pole of the battery, and a current of from ten to twenty-five milliampères was passed. Without withdrawing the needle from the rectal wall, Casper inserted it into three points in the prostate; the operation lasted fifteen minutes, and, as the needle was carefully insulated, no damage was done to the rectal and surrounding tissues. Of the four patients so treated, two were much improved; one was not influenced by the treatment, one was injured by defective insulation of the rectal needle.—*Deutsche medicinische Wochenschrift*, April 26, 1888.

Phenacetine.—SUCKLING, in the *British Medical Journal* of April 28, 1888, reports his experience in the use of phenacetine as follows:

During the past three weeks I have been using this drug as an antipyretic, and I can confirm Dr. Bell's statement as to its efficacy. I find that it is quite equal to antipyrin, but it is not nearly so powerful as antifebrin.

Phenacetine in moderate doses is not followed by any disagreeable after-effects. Antifebrin, on the other hand, causes profuse perspiration accompanied with great depression and should be given with care, not more than five grains at a time to an adult. Rigors occur after both antipyrin and antifebrin, but I have not yet observed them after phenacetine.

From five to ten grains of phenacetine may be safely given to an adult and frequently repeated. It reduces the temperature considerably in two or three hours, but the reduction is a very transient one, lasting a few hours only.

I consider sponging with tepid or cold water to be far more effective and agreeable than any of the antipyretic drugs, and it not only reduces the temperature but it relieves thirst, induces sleep, and is agreeable to the patient.

Abdominal Pressure in Hysteria.—DR. A. M. DOKHMAN, in a note communicated to the *Russkaya Meditsina* on the arrest of hysterical paroxysms by pressure on the "ovary," points out that the treatment is by no means new, as blows on the abdomen used to be administered by means of iron instruments in the Senmedarski epidemic, and were employed very largely by Goltz as early as 1727. He suggests that, although pressure is made over the region of the ovary, it does not appear that the ovary has much to do with the effect produced, for similar pressure is efficacious where no ovary exists—that is to say, in male patients. He is disposed to compare the effect to that produced by compression of the carotid artery, which will sometimes arrest a paroxysm, and he suggests that the sudden stimulation of the splanchnic nerves may produce an alteration in the vasomotor relations, and in this way may cause the arrest of the paroxysm.—*Lancet*, April 28, 1888.

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THE ORIGIN OF TYPHOID FEVER IN HOSPITALS.

HOLDING, as we firmly do, that certain of the infectious diseases can, in the course of time, be "stamped out," we hail with satisfaction every carefully worked-out contribution to preventive medicine. The study of familiar diseases from the standpoint of etiology is, as yet, far from attracting the attention it merits among sanitarians and pathologists. To the profession at large it is too often a matter of curious theoretical speculation, rather than a subject of every-day, practical application.

Etiological investigations, to yield full results, must include not only the life-history of the *contagium*, but also, to the minutest detail, the mode of the *contagion*. The acquisition of this kind of knowledge, and its general acceptance by practitioners and the people, will render scarlet fever and variola as rare in well-ordered communities as the plague now is in Western Europe, and keep the cholera east of Suez.

Especially do these remarks apply to typhoid, the great fever of the present historical era, the endemic, acute, infectious disease of modern civilization. This is a disease the spread of which can be absolutely controlled by the systematic, routine application of the simplest rules of disinfection. Not only in theory but in practice is it within the power of the physician to prevent any individual case under his care from becoming a focus of contagion, and to destroy the infecting principle definitely and finally. The rigid application of preventive measures to every case, and the detection and eradication of foci of contagion outside the human body, would soon lead to the extinction of typhoid fever in the most gravely infected locality.

FITZ has recently made a critical investigation of eleven cases of typhoid fever, of which seven probably, and four possibly, originated in the Massachusetts General Hospital in the course of six years, from 1882 to 1887 inclusive (*Boston Medical and Surgical Journal*, May 24, 1888). While the evidence of infection within the hospital is in none of these cases absolutely conclusive, it warrants the fear that familiarity has bred contempt for a danger that is real, and that we may be less habitually careful in guarding the medical officers, ward assistants, nurses, servants, patients and laundry workers against typhoid infection than the facts demand. The Massachusetts General Hospital, however, affords in these cases an experience widely at variance with that of other institutions. Hutchinson, whose article in the *System of Medicine* is referred to by Fitz, saw only one case of typhoid originate in hospital in twenty-four years: Murchison has collected, in his *Treatise on the Continued Fevers*, an imposing array of facts and testimony as to the infrequency of ward contagion. Liebermeister, in an enormous experience, has seen no case develop in hospital, except such as were attributed to defect in drainage.

The "special directions in typhoid fever," suggested by Fitz and his colleagues, are worthy of general adoption. They are as follows:

"1. Mattresses and pillows (when liable to become soiled) are to be protected by close-fitting rubber covers.

"2. Bed and body linen are to be changed daily. Bed-spreads, blankets, rubber sheets and rubber covers are to be changed at once when soiled. Avoid shaking any of these articles.

"3. All changed linen, bath-towels, rubber sheets and covers are to be immediately wrapped in a sheet soaked in carbolic acid (1 : 40). Remove to the rinse-house as soon as possible, and soak six hours in carbolic acid (1 : 40). Then boil the linen for a half hour, and wash with soft soap. The rubber sheets and covers are to be rinsed in cold water, dried and aired for eight hours. The bed-spreads and blankets are to be aired eight hours daily.

"4. Feeding utensils, immediately after being used, are to be thoroughly cleansed in boiling water.

"5. Dejections are to be received into a bed-pan containing half a pint of carbolic acid (1 : 20). The nates are to be cleansed with paper and afterward with a compress-cloth wet with carbolic acid (1 : 40).

"6. The bed-pan and cloths are to be carried to the tower. Add two quarts of carbolic acid (1 : 20) in divided portions to the contents of the bed-pan; mix thoroughly by shaking, and throw the liquid into the hopper. The bed-pan and hopper are to be cleansed with carbolic acid

(1 : 20), and wiped dry. The cloth used for the above purpose is to be at once burned.

"7. The corpse is to be covered with a sheet wet with carbolic acid (1 : 40).

"8. After the discharge of the patient from the hospital, the mattresses are to be thoroughly beaten and aired every day for a week. The bedstead is to be washed with corrosive sublimate (1 : 1000).

"9. These directions are to be followed until the patient is free from fever."

These rules, if carefully observed, would save much pecuniary loss, suffering and life. Useful as they would be in hospitals, their greatest value would be shown in private practice. The way to escape danger is not to ignore it, but to recognize it, proclaim it and intelligently guard against it.

AN ADVANCE IN MEDICAL EDUCATION.

In his recent address, as President of the American Medical Association, Dr. Garnett proved from the statistics collected by government, what ought to be conceded without argument, that medical colleges exacting a graded course of intra-mural study extending over three years, produced better qualified doctors than those requiring but two years of intra-mural instruction. He thought that the Association might take a hand in reforming the two years colleges by a peremptory call upon them to meet in convention and adopt uniformly the higher methods under penalty of exclusion of future two years graduates from membership in the American Medical Association. The plan, however excellent, is impracticable, since a large part of the active membership at each meeting of the Association is made up of teachers in two years schools, who will oppose all mandatory legislation. If the colleges ever convene for this purpose, it must be as the result of pressure from without, from the State Examining Boards, from the medical press, from the general public, including the non-teaching part of the profession.

It is an open secret that during last winter active efforts were made to get the leading medical colleges of Philadelphia and New York to adopt an obligatory three years course. Strange to say, opposition was developed where it was least expected. The school having the amplest facilities for thorough and extended teaching did not feel that this entailed any immediate obligation to lengthen and make more practical an antiquated course of instruction.

It is a pleasure to learn that Jefferson Medical College of Philadelphia has announced its intention, two years hence, to make an extension of its obligatory, intra-mural instruction to three annual winter sessions. East of the Ohio River but three colleges have taken this step, Harvard, the University of Pennsylvania, and now Jefferson Medical College. To this complexion all the colleges must come at last. The Maryland State Board of Health has announced a medical practice act, which, like that of Illinois, requires a three years course; and the Medical Examiners of California, after April 1, 1891, will not recognize diplomas from schools that do not require attendance on three full regular courses of lectures delivered in three separate years. No half-way house is allowed on the road, no such paltry substitutes as one year of home study from a syllabus will be recognized in these States as anything but a pretence of systematic instruction.

Two years college faculties are made of mortal stuff, and however indifferent they may seem to professional clamor, they cannot much longer keep their god-like serenity. If the unendowed professors of Jefferson Medical College, with their expensive hospital, laboratories and salaried corps of instructors, now, in compliance with the demands of higher education, take this step, it must be with some assurance of professional support. They will doubtless have diminished revenues for a term or two, but with the sympathetic support which the profession and the public have already shown for the cause of improved medical education, their loss will be only temporary, and at the same time the Jefferson school will strengthen its ancient prestige while making troops of new friends.

It is gratifying to find Philadelphia maintaining its old reputation as a centre of medical education, and that its two prominent schools have committed themselves to the cause of improved medical instruction. We hope that they, with Harvard, will not long stand alone in this advance, but that we may soon have the pleasure of also recording that the other leading schools have taken a like step.

CEREBRAL SURGERY.

On April 30th, Dr. W. W. Keen operated successfully on his third brain case. The patient was a man, aged twenty, who had suffered from epilepsy for seven years. The cause was obscure, but observation of a number of attacks showed that they all began in the left hand, and it was hoped that excision of the hand centre would arrest the attacks.

This centre lay in the post-Rolandic convolution, toward its inferior extremity.

An inch and a half trephine opening was made over the selected spot, and subsequently enlarged to two and a quarter by two and a half inches. Three parallel convolutions were disclosed, and it was difficult to decide which was the post-Rolandic convolution. By the use of a faradic battery, however, the hand centre was readily determined to lie in the anterior of the three gyri. This portion was excised. The membranes were œdematous over all three gyri, though to the eye the brain tissue itself seemed normal. After securing the dura, the trephine button and a number of the smaller fragments were replaced, and suitable drainage employed. The stitches were all removed in five days, the temperature never having risen above 100° F., and on the eighth day the patient was so well that he went out and was shaved. The integrity of the skull is entirely reëstablished.

The left hand has been paralyzed ever since, but no other paralysis has followed, thus establishing clearly the localized function of this part of the cortex. The epileptic attacks were at first increased in number, but have so far progressively diminished in frequency and severity. Should the ultimate result be favorable, it will go a long way to encourage such surgical treatment of this distressing malady.

At the meeting of the Pennsylvania State Medical Society held in Philadelphia, last week, Dr. J. B. Murdoch, of Pittsburg, was elected President for the ensuing year. The next meeting will be held at Pittsburg.

The New Hampshire Medical Society will hold its ninety-eighth annual meeting on Tuesday, June 19, 1888, at 11 o'clock A.M., under the presidency of Dr. S. W. Roberts, of Wakefield.

We take pleasure in calling attention to a letter from the Port Physician of Philadelphia in reference to the introduction of smallpox into Philadelphia last winter, which appears in another column. He claims that there was no evidence at the time to justify the detention of any passenger on the ship which is supposed to have brought over the first case.

The State of New York will be the first to make trial of electricity as a means of execution instead of hanging, Governor Hill having, after some delay, concluded to approve a bill for that purpose, passed by the State Legislature. The bill makes some other changes which are reformatory: the execution must take place at a State prison, and not at a county jail, as formerly; the priestly offices must be private; no farewell speech or publicity of funeral is allowed; the only attendants shall be the specified officers of the law; all parade and ostentation of sympathy are prevented. The law will go into effect January 1, 1889. One feature of the new bill which may be regarded as of doubtful expediency is that the selection of the form of instrument or means through which the fatal current is to be applied to the condemned person is left with the warden in charge of the prison in which the penalty is enforced.

On May 27th, at the Women's Clinic of the Berlin University, a bust of Prof. Carl Schröder was unveiled with appropriate ceremonies.

In the *British Medical Journal* of April 14th, Mr. Henry Fenwick gives the history of a case of urinary calculus consequent upon an ovariotomy two years before. The nucleus of the calculus was a silk ligature used in securing the pedicle. One or more ligatures ulcerated their way through into the bladder, causing cystitis and stone. By means of the electric cystoscope, one of these foreign bodies was seen before removal from the bladder.

Professor Leopold Max Politzer, the well-known specialist in children's diseases, died in Vienna on May 23d, aged seventy-four years. A contemporary of Skoda and Oppolzer, it devolved upon Politzer to place his chosen work upon a scientific basis; and, at a time when the Vienna Medical School was in its glory, to nurture his department and give it a worthy position. He was the founder of the *Jahrbuch für Kinderheilkunde* and of the Children's Hospital, now conducted by his former pupil and friend, Kassowitz. Politzer was made a Professor in the University in 1875. By his learning, his humanity, and his modesty, he earned the confidence of the public, as well as the esteem of his colleagues.

REVIEWS.

Transactions of the Brooklyn Pathological Society. Session of 1885–86. A. H. P. Leuf, M.D., Editor. New York: D. Appleton & Co., 1887.

This handsome and ably edited volume gives evidence of active work on the part of the Brooklyn Path-

ological Society. It contains descriptions of the various specimens in morbid anatomy, many of them of great interest, with abstracts of the discussions thereon. In addition there are a number of formal papers on various subjects of interest in general and special pathology. Judging from the active discussion and criticism these papers called forth, carried out in a truly scientific spirit, they must have been the most valuable and instructive part of the winter's work. As an example of the variety and practical interest of these articles we may mention: "The Nervous Symptoms of So-called Lithæmia," by Dr. Landon Carter Gray; "Some Serious Sources of Error in Studying the Course of Disease," by Dr. R. G. Eccles; and "The Pathology of the Lymphatic Glands in Children," by Dr. Henry N. Read.

CORRESPONDENCE.

QUARANTINE AT PHILADELPHIA.

To the Editor of THE MEDICAL NEWS,

SIR: I beg your indulgence for a few words of explanation in regard to your editorial comment and disquisition upon "Inefficient Quarantine," contained in THE MEDICAL NEWS of June 9th.

He who excuses, also accuses himself; therefore, I shall make a simple statement of the unvarnished facts and legal aspects of the case. Both officers and passengers of vessels have rights which are entitled to respect, in so far as those rights do not conflict with the *public* safety and welfare. The law very distinctly defines that the Port Physician has the right to detain any vessel whose passengers, officers or cargo may offer any evidence of suspicion as to being carriers of contagious disease. Now as to the case in question, and concerning which you have evidently been misinformed, I would say, that the said vessel, reported to have entered this port about February the first, containing a case of smallpox, did not at the time of entry present any evidence of contagious disease, either among the crew or passengers. During my close inspection of the said vessel, its crew and passengers, there was not manifest any symptom, either objective or subjective, to warrant a diagnosis of contagious disease. It may be well, also, to state, that the period of incubation of smallpox varies from five to fifteen days. Furthermore, the vessel presented a clean bill of health; "no sickness on board" attested to, under oath, by the captain and surgeon.

I trust that the above statement will suffice in placing the matter in its proper light, and receive the fair and impartial consideration which it merits.

Very truly,

W. H. RANDLE, M.D.,
Port Physician.

PHILADELPHIA, June 13, 1888.

THE TOXIC SYMPTOMS OF STROPHANTHUS.

To the Editor of THE MEDICAL NEWS,

SIR: On May 22, 1888, I was called to see a female child of five summers, who had thirty minutes previously been given by mistake of the mother *twenty drops* of the tincture of strophanthus hispians.

The face was flushed, lips scarlet; eyes brilliant; elevated temperature; skin dry, tongue normal. Pupils quivering, dilating and contracting alternately every few seconds; pulse 140, arteries distended; left ventricle contracting with unusual vigor; aortic valves closing with a loud and distinct "tup;" a slight mitral regurgitant murmur; intellect clear. The child was precociously loquacious during the five hours in which the toxic symptoms were apparent.

The treatment was half drachm doses of fluid extract of ipecac with copious drinks of warm water, repeated every ten minutes until the child had vomited five times, then followed with a half drop of tincture of aconite and one drop of the ipecac every half hour until the skin moistened and the pulse became normal. No urine was passed for ten hours after taking the drug.

HORACE Y. EVANS.

PHILADELPHIA, June 11, 1888.

NEWS ITEMS.

The American Laryngological Association announces the following programme for its Tenth Annual Congress, to be held in Washington, D. C., on September 18th, 19th and 20th, 1888:

Ten Years of Laryngology. By Rufus P. Lincoln, M.D., of New York.

Congenital Bony Occlusion of the Posterior Nares. By Charles H. Knight, M.D., of New York.

The Effects of varying Rates of Stimulation on the Action of the Recurrent Laryngeal Nerve. By Franklin H. Hooper, M.D., of Boston.

Subglottic Laryngeal Enchondroma. By E. Fletcher Ingals, M.D., of Chicago.

A Photographic Study of the Laryngeal Image during the Formation of the Registers and Production of Variations in the Pitch of the Singing Voice. By Thomas R. French, M.D., of Brooklyn.

Lupus of the Nose, Pharynx and Larynx. By Samuel Johnston, M.D., of Baltimore.

Imaginary Lingual Ulceration. By George M. Lefferts, M.D., of New York.

A Possible Substitute for Tracheotomy and Intubation in certain Cases. By Edgar Holden, M.D., of Newark.

Antiseptic Nasal Surgery. By Clarence C. Rice, M.D., of New York.

A Case of Sarcoma of the Tonsil. By Alexander W. Mac Coy, M.D., of Philadelphia.

A Case of Subglottic Chronic Stenosis of the Larynx Cured by Dilatation. By Frank Donaldson, M.D., of Baltimore,

Internal Œsophagotomy. By John O. Roe, M.D., of Rochester.

The Treatment of Atrophic Rhinitis by the Galvanic Current. By J. H. Hartman, M.D., of Baltimore.

The Anatomy of the Nasal Chambers. By Harrison Allen, M.D., of Philadelphia.

Notes on a Case of Nasal Caries, complicated with Meningitis; successfully treated by means of a Surgical Drill. By William C. Jarvis, M.D., of New York.

On Fixation of one or both Vocal Bands in the Phonatory Position. (So-called Abductor Paralysis.) By F. Donaldson, Jr., M.D., of Baltimore.

Residence at certain High Altitudes as a means of Cure for Laryngeal Phthisis. By Clinton Wagner, M.D., of New York.

Further Investigations as to the existence of a Cortical Motor Centre for the Human Larnyx. By D. Bryson Delavan, M.D., of New York.

Besides the above titles, papers have been promised by Drs. Morris J. Ash, J. Solis-Cohen, John N. Mackenzie and Beverly Robinson; and by Dr. A. Gougouenheim, of Paris.

Dartmouth Medical College.—Dr. Paul F. Mundé, at the request of the Faculty of Dartmouth Medical College, has consented to deliver the course of lectures on Gynecology at that institution this year, beginning July 13th, to fill the vacancy caused by the death of Dr. Dunster. Dr. William H. Parish, of Philadelphia, will give the course of lectures on Obstetrics.

A New Chest and Throat Dispensary has been inaugurated at 411 Spruce Street, Philadelphia, under the auspices of the Protestant Episcopal City Mission. Drs. F. P. Henry, Thomas J. Mays and William M. Angney are the medical staff of the chest department, and Drs. A. W. Watson and C. Jay Seltzer, that of the throat department.

An Exposition of Aids to Scientific Research.—The *Lancet* of May 12, 1888, writes that a most interesting adjunct to the meeting of German naturalists and physicians, which is to be held at Cologne, from Sept. 18th to the 23d next, will be its exposition of the mechanical aids to research, scientific in general, and medical in particular. In twelve comprehensive groups, every kind of instrument or appliance in surgery, medicine, and practical hygiene will be represented—among the exhibitors being some of the most noted mechanicians in Europe.

An Engraved Portrait of Dr. C. R. Agnew.—At the last meeting of the Ophthalmological and Otological Section of the New York Academy of Medicine, the following motion was made and carried:

"That a committee be appointed, of which the chairman of the Section, Dr. David Webster, be a member, whose duty it shall be to obtain a good photograph of the late Dr. Cornelius R. Agnew, for the purpose of having engravings suitable for framing made from this. The right of issue and sale of such engravings shall be given to some first-class publisher, if practicable; if not, the committee shall offer them to the profession at cost."

In accordance with the above, a committee has been appointed. Members of the profession who desire such an engraving, accompanied by an autograph signature, should send their names and addresses to the Secretary of the Committee, Dr. Charles H. May, 640 Madison Avenue, New York City, at once. When all such names shall have been recorded, those who have requested a copy of the engraving will be notified of the cost of the same, either by the publisher, or by the committee having the matter in charge.

Professor Donders attained on May 27th his seventy-first year, an age at which the Dutch law compels him to resign his professorship in the University of Utrecht. At the festivities with which the occasion was celebrated, a large number of distinguished men, not only from all parts of Holland and the Dutch colonies, but from this and other countries, assembled. An address was presented to Professor Donders, recognizing his forty years' services to science and humanity. The Professor announced that he desired the memorial fund to be appropriated to assisting young physiologists and ophthalmologists at the University. The King conferred the distinction of Commander of the Golden Lion on Professor Donders, and the Government was represented at the ceremony by the Home Minister. King Humbert sent him the Order of the Crown of Italy, and Sir Joseph Lister congratulated the Professor on behalf of the Royal Society of England. A medal was also struck commemorative of the day's ceremony. Professor Donders declared that, although he was leaving the University, he had not finished his task. A banquet was given to him in the evening.—*British Medical Journal*, June 2, 1888.

Impure Ice.—The danger of an impure ice supply has been the subject of a very thorough investigation by the Massachusetts State Board of Health, which attributes many cases of typhoid fever occurring in cities in autumn to bad water and the results of bad drainage, or none at all, at the summer resorts. The board, therefore, urges upon people who are considering the question where to spend the summer, the importance of selecting places which have proper drainage and pure water supply. In places where ponds are made for the purpose of collecting water for a supply of ice, it is almost certain to be contaminated with sewage, as freezing does not kill, but only conceals, bacteria. A most mysterious case of wholesale poisoning at a summer hotel was finally traced to the impure ice which had been secured from neighboring, shallow ponds. Upon analysis, the melted ice was found to contain, in suspension, a large quantity of decomposed, vegetable matter. The organic matter mostly settled at the bottom of the vessel, but the lighter matter remained diffused through the water. The pond, the source of supply, was examined and found stagnant, and at one end a putrescent mass emitted an intolerably offensive odor. It was reasonably supposed that the ice was the cause of the sickness, and upon its disuse the epidemic abated. Prof. Raphael Pumpelly, who made investigations for the National Board of Health, has no doubt that ice can carry any disease that the water from which it is frozen can convey and that there is even more danger from the ice than there is from the water itself, since sewage is more easily decomposed in summer than in winter. While in cities the greater part of the ice received is pure, in towns where the supply is taken from shallow ponds, both the water and the ice may be a source of danger.—*American Analyst*, June, 1888.

A Prize Awarded.—The Institute of Venice has just awarded the Balbi-Valier prize in Medico-Chirurgical Science, value 6000 francs ($1200), to Professor Sangalli, of Pavia, for his work, "La Scienza e l'Arte dell' Anatomia Patologica." Dr. Sangalli is the Nestor of Italian anatomists and pathologists, and his essay, full of independent research and original thought, has also a special historical value.

The Death of Dr. Snowden.—DR. JOHN WIEGAND SNOWDEN died at Hammonton, N. J., on May 28, 1888.

Dr. Snowden was born in Philadelphia, April 22, 1823. He was the son of Thomas Snowden, who was, for over thirty years, associated in business with John Wiegand,

as a manufacturer and importer of surgical instruments in Philadelphia.

He was educated at the "Engle" classical school in Philadelphia, assisted Dr. George McClellan as demonstrator of anatomy, and graduated from the Medical Department of the University of Pennsylvania in 1844. He commenced the practice of medicine in his native city, but soon removed to Middletown, Delaware, and thence to Chew's Landing, Camden county, New Jersey. He was of feeble constitution and subject to pulmonary diseases. Learning from the natives that a residence in the barrens of New Jersey, called the "Pines," was a sovereign remedy for these affections, he removed, in 1846, into what was then the centre of that wilderness, near where is now the Angora station on the Camden and Atlantic Railroad. In June, 1849, he joined the Camden County Medical Society, and was at his death the oldest member on its roll. He had filled all the important offices in the Society, having been twice its president, and for nine years chairman of its "Standing Committee," resigning, in 1887, in consequence of ill health. He was a member of the New Jersey State Medical Society, and its president in 1882, a member of the American Medical Association and of the Obstetrical Society of Philadelphia. A few years prior to his death, he removed from Angora to Hammonton, six miles below the former place, and just within the limits of Atlantic County, where he died May 28, 1888.

At a special meeting of the Camden County Medical Society held at Camden, N. J., May 30, 1888, the following was ordered to be placed upon the minutes.

"In the death of Dr. John W. Snowden, who was a member of this Society for thirty-nine years, who rarely was absent from its meetings, who filled its highest posts of honor, maintained its dignity, and used his rich fund of experience and ripe judgment in the interest of harmony, this Society has sustained a great loss."

"We commend to the members of the Society this bright example of the true physician, one who, for forty years, by night and by day, in sunshine and in storm, devoted talents, worthy of a more brilliant theatre, to the people of a sparsely settled district, and ministered with great medical skill to alleviate their sickness and sufferings; and often with true Christian piety, furnished them with spiritual consolation."

"We extend to his bereaved family our sincere sympathy in their sorrow and loss, knowing that, although his place cannot be filled, their and our remembrance of him will be of one who, in all his relations in life, both public and private, was the embodiment of purity, honor and dignity."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING JUNE 9, 1888.

MAGRUDER, A. F. *Surgeon.*—Detached from the "Yantic" and granted sick leave.

BATES, N. L., *Medical Inspector.*—Ordered to the "Richmond."

KIDDER, B. F., *Medical Inspector.*—Detached from the "Richmond," and waiting orders.

MACKIE, B. F., *Surgeon.*—Detached from the Naval Examining Board preparatory to sea service.

HEYL, T. C., *Surgeon.*—Ordered to the Receiving Ship "St. Louis."

STREETS, T. H., *Surgeon.*—Detached from the "St. Louis," and ordered to the Medical Examining Board as Recorder.

DUBOISE, W. R., *Passed Assistant Surgeon.*—Detached from the Naval Hospital at Norfolk, and ordered to the "Jamestown."

WELLS, HOWARD, *Passed Assistant Surgeon* —Detached from the "Jamestown," and ordered to the Hospital at Chelsea.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING JUNE 9, 1888.

BAILHACHE, P. H., *Surgeon.*—Detailed as Chairman of the Board of Examiners, to meet in Washington, June 25, 1888. June 8, 1888.

FESSENDEN, G. S. D., *Surgeon.*—Detailed as a member of the Board of Examiners, to meet in Washington, June 25, 1888. June 8, 1888.

PURVIANCE, GEORGE, *Surgeon.*—Detailed as Recorder of the Board of Examiners, to meet in Washington, June 25, 1888. June 8, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 29 TO JUNE 11, 1888.

WHITE, ROBERT H., *Major and Surgeon.*—Will report to the regimental commander, First Infantry, to accompany Headquarters, Field, Staff, Band and Battalion of the First Infantry to Santa Barbara, Cal., on or about June 15, 1888, to remain until about September 1, 1888.—*S. O 25, Division of the Pacific*, May 28, 1888.

APPEL, D. M., *Captain and Assistant Surgeon.* — Upon the arrival of Captain J. V. Lauderdale, Assistant Surgeon, at Fort Davis, will proceed to Camp Pena Colorado, Texas, for temporary duty at that camp; and upon the return of First Lieutenant H. S. T. Harris, Assistant Surgeon, to Camp Pena Colorado, Assistant Surgeon Appel will return to Fort Davis.—*S. O. 57, Department of Texas*, May 28, 1888.

KEAN, J. R., *First Lieutenant and Assistant Surgeon.*—Will accompany Troop C, Ninth Cavalry, from Fort Robinson, Nebraska, to Fort Du Chesne, Utah, and return with Troop B, Ninth Cavalry, to Fort Robinson.—*S. O. 39, Department of the Platte*, May 19, 1888.

MORRIS, E. R., *First Lieutenant and Assistant Surgeon.*—Granted leave of absence for one month, with permission to apply for an extension of one month.—*S. O. 61, Department of Arizona*, May 28, 1888.

FINLEY, JAMES A., *Captain and Assistant Surgeon.*—Granted leave of absence for six months, on surgeon's certificate of disability, with permission to leave the Division of the Missouri.—*S. O. 129, A. G. O.*, June 5, 1888.

BENHAM, ROBERT B., *Captain and Assistant Surgeon.*—Is relieved from duty at Fort Du Chesne, Utah, to take effect upon completion of the duty assigned him in par. 2, S. O. 33, c. s., Department of the Platte, and will then proceed to Fort Laramie, Wyoming, reporting to the commanding officer for duty at that post.—*S. O. 44, Department of the Platte*, June 4, 1888.

PILCHER, JAMES E., *First Lieutenant and Assistant Surgeon.* —Detailed as a member of a Board of medical officers appointed by S. O 108, A. G. O., May 10, 1888, to meet at the U. S. Military Academy, West Point, N. Y., to examine candidates for admission to the Academy, etc., vice Major Robert M. O'Reilly, Surgeon, relieved.—*S. O. 128, A. G. O.*, June 4, 1888.

CHERBONNIER, A. V., *Captain and Medical Storekeeper.*—Granted leave of absence for four months, on surgeon's certificate of disability —*S. O. 133, A. G. O.*, June 9, 1888.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LII. SATURDAY, JUNE 23, 1888. NO. 25.

ORIGINAL LECTURES.

ON THE MUSCULAR REACTIONS KNOWN AS TENDON-JERKS AND MUSCLE-JERKS.

A Lecture Delivered at the Infirmary for Nervous Diseases, May 17, 1888.

BY S. WEIR MITCHELL, M.D.,
PHYSICIAN TO THE INFIRMARY.

IT has long been my wish to give in this hospital a series of lectures on certain symptoms of nervous diseases. This would have included what I may call their natural history—the modifications they exhibit in various diseases and in different people. Circumstances will interfere with the full development of my project, and I shall this May be able to give but one lecture. For this I have chosen muscular reactions in health and in disease, and, limiting our study to mechanical stimuli, I shall have little to say as to electricity.

There are symptoms which exist in health and are changed or abolished by disease. There are reactions known only to disease. Most of the muscular reactions are present in the healthy, and are merely altered by sickness. I have selected them for treatment in this lecture because a full enough statement of recently acquired knowledge as to them is not to be found in the text-books, and because with the material in our wards it is easy to illustrate my subject.

These symptoms, which are also facts of health, include what results we get from striking a tendon, and those which follow a blow on the muscular tissue.[1]

If the tendon of a muscle be abruptly pulled upon, the like effect is conveyed through it to the muscle and this responds by a contraction, which in turn pulls on the tendon and moves the connected part. In certain morbid states any muscle can be made to react to a blow on its tendon, but in health, with less sensitiveness of muscular reply, only favorably situated tendons can be so used with certainty of response. The tendon must span some region of soft tissue, so that being struck while tense, it may be driven down in a loop, and thus occasion a quick jerk of the muscle. The lower tendon of the patella and that of the gastrocnemius are best situated; the biceps at the elbow, not quite so favorably; and the temporals reply to a blow on the lower jaw.[2]

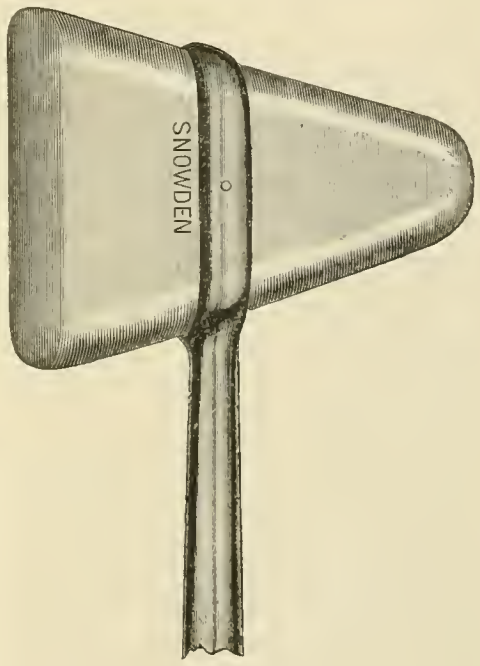
Tendon-jerks may be had elsewhere even in health, but care is needed, and peculiar forms of hammer. Indeed, for accurate study of any tendon-jerk the hammer with a head of not too hard caoutchouc is desirable. Dr. J. M. Taylor has devised the one I show you, the long side for use on tendons, and the round end to get muscle responses by a direct blow on the muscle (Fig. 1).

1 For the best account of them see Buzzard's admirable essays, and Ross, p. 162, vol. i.

2 First discovered in this hospital by Dr. Morris J. Lewis.

It will be easiest and best to begin with the study of the knee-jerk or knee-phenomenon, as that was the first of its class to be clinically utilized, the one best known, and most fully studied.

Fig. 1.



Taylor's hammer.

Let us see, in a normal man, how readily to evoke knee-jerk, or what we briefly call K. J.; how to measure it; what modifies it; how to explain it and its variations; and, lastly, what clinical value it has. When we have covered this ground as to knee-jerk, the other like phenomena will demand little additional explanation.

To test roughly the mere presence of knee-jerk, it suffices to set the patient on a table's edge, so that the legs may swing, or to let him cross his legs so as to allow the upper limb to hang passive. Then strike, with the side of the palm, on the tendon of the knee-cap above its tibial attachment, a smart, quick blow. The tendon thus abruptly jerked communicates its motion to the muscle, and this responds in mass by a contraction which moves the leg and foot. A prettier way is to put the left forefinger on the tendon, and then to strike with the other hand, or, better, with the hammer, upon the finger so placed. The faintest response is felt by the finger while the eye may observe also the lift of the foot.

This plan is very useful for examining a man on his back in bed. You properly flex the knee, and with the man's foot at rest on the bed, put a finger on the tendon and strike on it, judging by the sense of touch the

amount of the knee-jerk. Very often I seize the extensor mass with the left hand and strike the tendon with the ulnar edge of the right hand. You thus feel the muscle as it swells responsive to the jerk made through its tendon. In rapid examinations, in women, it is usually easy to decide as to the mere presence of knee-jerk, by striking on the finger without lifting the skirts. The best plan of all is to feel for the tendon, place thereon firmly a small rod about three-quarters of an inch in diameter and covered with rubber tubing, and strike on this. You waste no blows and cause less pain by use of this method, and can at once get the maximum effect. With this arrangement, also, it is easier to get correctly the moment for reinforcements, of which I shall presently speak.

These methods answer very well to tell us simply whether or not knee-jerk exists; but if as to this there be any doubt, we have to resort to other and more careful arrangements. In my clinic, the patient sits at ease, and well back, in a high chair, with the leg and body both at right angles to the thigh. If the response be feeble, it is still better to let the body fall back slightly, and to lift the leg a little above a right angle, so that it rests quite passive. You thus stretch the whole muscle from above and from below before you strike.

It is sometimes hard to make a patient entirely passive, and this passivity, some of the books say, is essential; but a man cannot entirely stop or conceal the knee-jerk response, be he ever so nervous or unable to relax his muscles. *Violent* innervation of the crural nerve will stop it, but milder effort will not.

The books tell you to seat the patient on a table without back support for this examination, but, as I shall soon point out, there is reason in doubtful cases for securing a more passive position, since motion elsewhere unnaturally increases the knee-jerk. For very delicate studies, like those in Lombard's admirable essay, he puts the patient on one side, the leg in a guttered splint, the foot suspended in a stirrup by a long string. Thus placed, the leg moved easily in response to the knee-jerk. In our own researches, a variety of positions were employed. In common practice the crossed leg answers, but if there be doubt as to whether the knee-jerk is either above or below the normal standard, certain precautions must be taken to insure accuracy. The need for such care will be seen as we go on to study what I like to call the natural history of this symptom. Let us observe it. As the hammer falls on the tendon of my patient, at ease on the lounge, or leaning back in a chair, the muscle contracts and the foot and leg are lifted and then fall back. We see that the excursion of the foot is less or more. As we strike again, and again, this excursion varies.

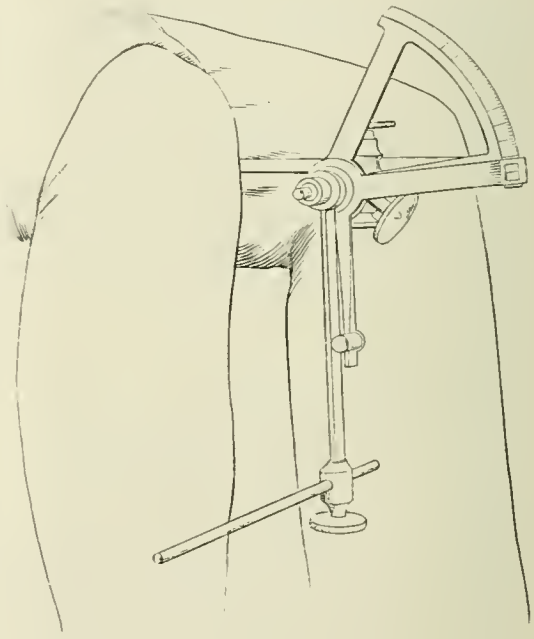
In some normal men, and often in spastic disorders, the jerk calls the opponents into action, and as Lombard shows, when the foot swings laterally suspended, and thus free, it does not always return to its place, as if the muscle did not fully relax. The primary jerk varies, but there is always a maximum beyond which the foot does not go, no matter how hard we strike.

Let us further study the influence of position; I lessen the angle of the leg to the thigh, and, as you see, the repeated blows on the tendon get slighter and slighter responses. A very able observer (Gowers) thinks this is due to the fact that tension is physiologically essential to the evolution of knee-jerk. As to this, I think him mistaken.

It is only mechanically essential (and under certain conditions it is not required at all). The tension enables us to act sharply on the largest mass of muscle. Tension is convenient for this reason. I showed long ago that a certain amount of tension, even in spastic cases, causes knee-jerk to cease. To show this, I place a spastic patient on his belly, and with the knee at a right angle, continue to strike the tendon as I further flex the limb. At a certain point the knee-jerk ceases. This is not (as you might suspect) merely because the tendon is at a disadvantage, mechanically, on account of extreme flexion, as may be easily shown, and very prettily.

The subject is seated, and the knee held at nearly that limit of flexion which stops knee-jerk; as you see, we get fair replies. Then the man is allowed to fall back supine, and the tension thus added at the truncal end of the muscle, stops all knee-jerk. You may now see why we are careful as to position, both of body and of leg.

Fig. 2.



Lombard's meter.

To get the best results out of knee-jerk, a little practice is needed. If we desire greater accuracy in our record than merely to be able to say knee-jerk present in excess or not, we have here, for clinical use, my friend Dr. Warren Lombard's simple meter. The instrument, as I now show it to you, will probably be used by neurologists only. A strong clamp attaches the instrument to a chair raised so as to keep the patient's legs off the floor. A bar which projects between the patient's legs, and which can be pulled out or shortened, carries a dial plate divided into centimetres. A light swinging rod, with a cross bar, is set so as to drop on to the middle of the tibia. The patient sits back at ease; the blow on the tendon is struck; the rising leg lifts the rod, and this carries before it an index which it leaves so as to mark the limit reached.

Two or three blows give us the maximum, and then we go on to get, also, the maximum reinforcement.

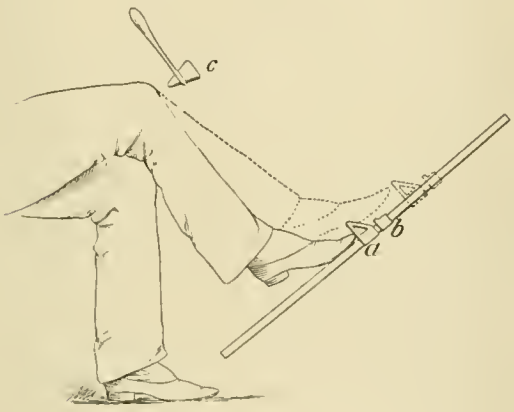
Should this instrument come into use, it would be well to agree on a common method of dividing the dial, and on a common length of lever.

Dr. Lombard's ingenious instrument, which is too costly for common use, set me to thinking how more easily to get a numerical statement of knee-jerk for reference.

With the patient always in the same position, with care to avoid reinforcements, place a yardstick or metre against the wall, in front of the foot, so that some one else can note the height to which the tip of the foot rises; get the maximum from several blows on the tendon, and note it for future use.

Here is a better measure (Fig. 3): A metre or yardstick carries a light, very movable arrangement of wire, about four inches in height, by five inches in breadth (*a*). This is set or fixed so that the toe rising with the tendon-jerk, will push it up the scale. As it moves it pushes up, and leaves behind it as a marker a double loop of wire (*b*). This I had made yesterday. It answers

FIG. 3.



The author's meter.

admirably, and in a little more complicated form will do still better. Needless to insist that the results may not be generally comparable, but, in a measure, they may be, and, for comparison, from time to time, in individual cases, are most desirable.

Our object is, of course, to get a normal expression of the knee jerk. As we avoid, therefore, too great or too slight flexion, so also do we avoid all other influential agencies. Thus, if it did not take too long, you might easily be made to see that pressure on the sciatic nerve, —constriction of the leg (even so slight as that made by a rolled-up pantaloon) serves to lessen knee-jerk. Even fatigue may do this. In my own case, and in others, the knee-jerk is least at night and best in the morning. Moreover, damp, relaxing days lessen it notably, and always after my winter work it is not so good as in the autumn after my holiday. It is different also in most men in the two legs. On the other hand, several things increase the knee-jerk, and may cause it to seem great, when, without such aids, it is not. These influencing additions were called by Dr. Morris Lewis and myself "reinforcements."

What these are—how to avoid their deceptive presence—how also to use them, will be the next subject to which I now ask your attention. About this matter more is known than was at our disposal three years ago. Much of what *is* known was contributed by members of the staff of this hospital, and the four papers which have cast a flood of light on the phenomena of knee-jerk are, I am glad to say, entirely the work of American physiologists.

The germination of thought in crops is often interesting. For years there had been no large addition to our knowledge of knee-jerk, when Jendrássik of Prague made the most interesting observation that certain *violent* motor acts increased the knee-jerk, if they took place in time nearly coincident with it. That he should have here left this fruitful fact without further study seems amazing. Still more that it should have remained for some years almost unnoticed.

Turn with me now to the normal subject before us, and let us illustrate the strange harvest, which for Dr. Lewis and for me, grew out of Jendrássik's pregnant observation. I shall show that every motion, if at all decided (even if it involve a small single muscle), increases knee-jerk. To wink, speak, cough, move a finger is enough, as you see. Probably all coincident motions thus reinforce knee-jerk in degrees which vary with their intensity. A vast range of facts in these directions was evolved by us out of Jendrássik's single statement. Just now they interest us on but one side. Presently we may discuss their cause. Enough at present to show that they teach us two things. First—that when a knee-jerk is seemingly absent an added motor reinforcement may show it to be not entirely lost. Second —that in estimating normal, or other knee-jerks, if we desire accuracy, the patient must be at rest with closed eyes, and neither speak, nor laugh, nor swallow, nor make any avoidable movement.

But while we were thus enormously adding to the singular fact made known by Jendrássik, we discovered a new set of reinforcing agencies. Just as it seemed that all voluntary motion apparently increased knee-jerk, so also, we found that a vast range of sensations had the same power. This discovery has, as yet, been of no direct clinical value. It has, however, been shown by us of late that in certain cases, motor reinforcements fail to act, and sensory reinforcements remain efficient. In others the reverse obtains, and it is to be hoped that as we get clear ideas as to the spinal tracks of reinforcements such knowledge as this may become valuable.

To exhibit an illustration of sensory reinforcements, I strike the tendon lightly, so as to cause a gentle foot movement. Just before the next blow I touch the skin anywhere, on the arm, neck or leg, with ice or a hot blade, or pull a hair or pinch the skin. The results as seen are startling. There seems to be a minimum limit of sensory reinforcement. A touch does not answer, or seems not to do so, and yet, probably all sensory impressions, like all motions, act in this direction. Not all, however, have power visibly to represent their effects. The most tremendous influence is to be had by passing galvanism through the anterior part of the brain, and if we add to this consentaneously also a sensory and a motor reinforcement we get such knee-jerks as elsewhere are seen only in spastic disease. Galvanism, thus used, has probably a complex effect, made up of sensation, motion, emotion, and some other more immediate affections of the brain.

In practice I find you can get the united influence of sensory and motor reinforcements by asking a man to pinch his arm at a signal; if, then, also he should make a grimace, you will have powerful reinforcements of two kinds.

When you come to suspect that a diseased zone of cord may probably reinforce parts below it, such sensory increments become most interesting to think of.

But let us turn, for the time, to the next crop evolved by the work of Lewis and myself. My friend Dr. Warren J. Lombard took up the subject, and with accurate laboratory methods, confirmed all of our results, and added many things of interest. He showed, as we had done, how fatigue of body lessens knee-jerk, how sleep affects it, and how the weather influences it. We come to see, as we read these two papers, that this responsive act represents well the state of the body. For reasons to be later stated, it is as yet clinically valueless in this direction, because of its too delicate cognizance of actions, sensations, and emotions. Indeed, the most brilliant discovery of Lombard was that "emotion enormously affected the knee-jerk." If you listen to music, or read poetry and a passage touches you, the knee-jerk obtained just then is vastly reinforced. A cry of a child, a sudden knock at the door suffices to do the like. And all this is to be remembered, because it gives some clew to the mechanism of reinforcements, and because of the influences of emotion in cases examined, especially for the first time. In fact, emotion seems to be, of all reinforcements, the most remarkable, save galvanism of the head. When, for example, you have before you an hysterical girl, what with fear, excitement, apprehension, and perhaps shame, there is an emotional state which seems strangely competent to exaggerate the knee-jerk, and to do so for some considerable time, making what I might call a quasi-permanent state of reinforcement.

In Lombard's experiments it was brief, transient emotions which were thus active, and he was not called upon to see, as we are, the whole spinal system thus excited for half an hour or more by the grouped excitatory power of many emotions. Every neurologist sees this condition. You strike the knee in an hysterical girl and the knee-jerk is surprising, and with it often enough the other leg flies up, and one arm—usually the left. A blow on the tibia will not do this as a blow on the tendon does. It is a combined result of a blow on the tendon and of emotion.

We see the same thing in the first examination of neurasthenic, timid and apprehensive men. At another visit, the exaggeration is missing. It has gone with the subsidence of emotion, or has much lessened.

I have enumerated most of the known agencies which lessen or increase knee-jerk. There may be many others, and Lombard's study and our own show that in all likelihood the interior operations of the body, and even of the mind, may furnish reinforcing agencies which we have no means of analyzing or explaining.

I have dealt thus far only with the natural history of the evolved symptoms of knee-jerk. What, now, is the explanation of this occurrence?

All muscles have a certain capacity to respond by motion to the two means of excitation known to us. These are, first, mechanical, as a blow, or a sudden pull on the muscles through the tendon; and, second, the various forms of electricity.

Let us deal with the first. I strike a blow on the tendon of the patella below the knee. The crural mass of muscle answers by motion. Again, I strike just above the patella—we are still on tendon—and the muscle moves in mass. I go higher, and the extent of the movement lessens as I leave the tendon. Now, I turn my hammer, and strike with the point on the muscle. There is still motion, but it is limited in amount, and as to the area affected. On the thin chest muscles, with bone beneath them, you see best what occurs. The blow falls; a certain length of fibre shortens, and in some cases, and always in certain situations, just under the hammer a hump of muscle rises slowly, and as slowly falls away. If all at once you could strike every fibre of the muscle, you would have a result in effect like that which the favoring relation of muscle to tendon enables you to get when you strike the latter. So far the two sets of motor responses are much alike; also, there is a further resemblance. Both are reinforcible by distant motion and by sensation. Strike lightly with the rounded hammer point on the supinator longus, and at the next blow tell the patient to shut the other hand strongly, and you get a visible reinforcement.

How, then, do they differ? Both involve primarily the presence of that intrinsic irritability which all muscle possesses. If disease or injury severs the motor or sensory nerve of a muscle, or damages its related spinal centre, the tendon-jerk ceases, but the muscle-jerk from a direct blow remains. The inference is that the spinal cord contributes something, which, by adding to the responsive capacity of the muscle, enables it to move in reply to the pull made on its tendon. The direct muscle blow still causes motion, and whether this response be, in a measure, *lessened* by such nerve or spinal paralysis as *destroys* tendon-jerk, is yet to be learned.[1] The same elements may be needed for the *full* reply to both forms of stimulus, but the direct blow is what I may call a more positive stimulus than the tendon-pull, and so evokes a reply from the intrinsic unassisted muscle quality of excitability. This property of muscle may even be increased by disease which destroys the knee-jerk. The nerve or spinal loss which acts thus destroys for both tendon-jerk and muscle-jerk the capacity to be reinforced by distant motion or sensation, so that here, too, is an added resemblance between muscle-jerk and knee-jerk.

And now as to the mechanism, which, in health, causes a muscle stretched abruptly through its tendon to contract. The mere intrinsic muscular irritability will not suffice. That gives the muscle power to contract under a blow, or from electricity, but something more is wanted to give rise to the response to a pull. What is the addition which supplies this excess of excitability? Whatever it be is present in excess during reinforcements, and whatever explains the mere knee-jerk must also, in a measure, explain reinforcements.

We are thus brought to the much disputed question as to whether knee-jerk be a direct muscle act or a reflex. At first, it seemed simple to suppose it a reflex from the

[1] Thus, if we conceive that both a direct blow and tendon-pull act alike, and both profit by the spinal aid, this latter being taken away destroys the tendon-jerk, but leaves us able to see a muscle-jerk, because, even if this loses something by loss of spinal connection, the mere intrinsic muscle properties enable violent local stimulation to get responses. To prove that something is thus lost, for it is but theory, we have yet to study the facts with more care.

tendon, but when all tendon nerves are cut it still occurs. Then it was presumed to be a reflex, due to the sensory effect of the multiple pulls on the nerves of the muscular aponeurosis, through the tendon. This was supposed to cause excitation of the spinal cord, an efferent motor response ending in a muscle act. This would be an ordinary reflex act. But, as against this, was the fact that the time of a tendon-jerk is not less than a fourth that of a common skin reflex. This objection seemed final to most physiologists as against the reflex theory. And yet, some spinal aid was clearly requisite. An able English neurologist (Gowers), deceived, as I think, by the mechanical needs of the knee-jerk, came to believe that tension was the precedent requisite, and that preparatory passive tension, obtained by flexion, excites by a reflex influence a state of extreme irritability to local stimulation which enables knee-jerk to occur. In other words, there is a precursory tuning of the muscle.

My previous remarks show that tension is less needed than Gowers supposed; and of late, his ingenious explanation has received less acceptance.

Another view presumes that the muscle is kept constantly in a state of sensitiveness by contributions of excitation from the spine. Out of the influence of these, *plus* the normal excitability, arises the so-called tone of the muscle. It would be lost by nerve injury, sensory or motor, and by certain central diseases, and with its loss the increment of sensitiveness due to spinal contribution would fail, and with this of course, too, the knee-jerk.

All reinforcements would be explained as coincidently supplying power to these ever-flowing tone waves. Under this explanation, knee-jerk becomes a local muscle-jerk, and its brief time not so surprising or embarrassing. When I last wrote of this matter, we were inclined to accept the tone theory as explanatory of all the facts; but, in the light of Lombard's and Bowditch's work, and my own further reflections, I have come to doubt more and more, and to feel it as possible that knee-jerk is really a peculiar reflex, with a short time. To settle the matter we require fresh laboratory studies of muscle-muscle reflexes in man.[1]

As regards the tone theory, it seems hard to conceive that instantly on nerve section the muscle should be so toneless as to give no knee-jerk, and there are other opposing facts. Section of the motor nerves through which the tone waves flow (if they exist) paralyzes knee-jerk; but section of sensory nerves does the same, and it is hard to explain this, unless we conceive of the individual muscle metabolisms as furnishing to the spine the essential excitations which return from it to the muscle in the tone waves.

If tone, in the sense here explained, be not a competent theory, then we must consent to call knee-jerk a reflex, and consider all reinforcements as not going beyond the spinal ganglia, and as therein reinforcing reflex excitations, in place of spreading out as tone waves to the muscle, and therein reinforcing.

Tone has been taken to mean tension, or some more mysterious preparation, for response to excito-motor agencies. If it be tension, this ought to be capable of being shown. I spent a great deal of time in efforts to see, if with the leg at an angle and without a blow on the tendon, reinforcements would not show themselves. In this I failed entirely. I do not say it is not to be shown. But if tone waves reach the muscles, and are the positive things they seem to be, they ought to be capable of registration. Certainly they cannot mean tension; and, if not measurable in muscle, it would look as though they did not reach it.

Time may settle this question. Meanwhile, as against reflex theories is the time. As to this, however, it is unwise to be sure that skin-muscle reflex time is the only one. Muscle-muscle reflex time has yet to be more fully studied, and may be more brief than has been supposed. We were quite unable to reinforce skin-muscle reflexes, such as that of the cremaster. The study was excessively difficult, and I do not yet feel absolutely assured that we were correct. If it should prove that we were, this might be regarded as measurably against the view that the muscle-muscle acts (K.-J.) are true reflexes. At all events there seems to be this difference between the two sets of replies to excitations.

There are other points which look favorable for the reflex theory, or as against tone explanations. Thus, when we cut the motor roots which enable knee-jerk to occur, we cannot restore knee-jerk thus lost by substituting a delicate electric current in the peripheral nerve end to imitate the lost spinal contribution. Again, a blow on the tendon causes not only local, but sometimes also distant reflex muscle acts in the other leg or in an arm. These cannot be skin reflexes,[1] and are seen best in the presence of emotional reinforcements.

Again, it often happens to one to strike a tendon with equal force over and over, and only after a time to get a violent response, far beyond the man's normal. I have seen this in tired men. It appears to be a summation of excitations and an explosive reply. I find it hard to conceive of this as a localized muscle phenomenon. It is like a reflex occurrence. A blow on a muscle elongates a limited breadth of fibre. It contracts, and this is like a knee-tendon jerk, but is a limited and coarse reply. If knee-jerk depended only on perfect extra-spinal muscular excitability, when this quality rises, as it does in some diseases, the knee-jerk ought also to increase, but in these very states it may be lost, and yet, the answer to a blow remain above the normal.

We were never able to reinforce muscle acts electrically caused. As Professor John Curtis suggested to me, this may be because electricity is a less potent reflex excito-motor than mechanical force. If the reinforcements reach muscle as tone waves, one excitor should be as good as another; but if they do not, then the only agents which will reinforce will be such as competently reach along reflex nerves to the spine, and it would look as if a blow did this, and moderate faradic currents did not.

There is, indeed, already some reason to suppose that mild electric currents are less competent reflex excito-motors than mechanical force. Thus, while a mere touch on the side of the thigh will excite the cremaster reflex, a faradic current strong enough to evoke muscular motion may not cause the testicle to stir.[2] The argu-

[1] I should then propose to use these terms, muscle-muscle reflex and skin-muscle reflex.

[1] A blow elsewhere does not cause them.

[2] To test this place both conductors dry on the excito-cremasteric region. The first cool touch may cause cremaster reflex. Then, being careful not to move the conductors, make and break

ment as concerns electricity and mechanical stimulus is emphasized in spastic cases. In these, the faradic electric reactions are usually not increased, while a tap or squeeze or tendon-jerk is competent to excite extensive movement. The blow gives rise to excessive action, the electricity only to common responses.

I have stated the gathering arguments for and against, but after all has been said, we are still in doubt as to the true nature of tendon-jerks. Yet, as the matter now stands, it is more and more clear that the time element is not the convincing argument against considering the knee-jerk a reflex, which many writers have held it to be.

Since Jendrássik's discovery and its extension by Lewis and myself, with our additional discovery of the reinforcement power of sensations, and Lombard's emotion reinforcements, the question of the nature of these has also to be considered.

There seem to be but two possible ways in which motion, sensation, or emotion can reinforce. One is indirect and one direct. It may be that all motor or sensory activity tends to release from inhibitory control other ganglionic masses than those in immediate use, and sets them in a measure free to respond to other agencies, such as external stimulus. To use a homely comparison, "the brakes are taken off." Thus a motor volitional act may so affect a spinal centre as either to set it at liberty to send out more energetic tone-waves, or more potently to feel, or to feel and reply to reflex excitants. The other view is that every motor act or sensory impression sets free surplus energy, which is felt as reinforcement throughout the body. And this is the doctrine of overflow.

I have already pointed out that every positive and abrupt motion or sensation, however remote and wherever it may be, is able to reinforce any tendon- or muscle-jerk. What is true of the stronger influences must be measurably true of the weaker. The reinforcing excitations may not show in the increase of the jerk, and yet may exist. Accept this quite possible conception that every sensation, every volition, every emotion (perhaps every mentation) sends its excess of force over countless tracks into many parts of the nervous system, and possibly into every muscle. The effort to realize this incessant effluence of energy is difficult. Some attempt at analysis may be of use, and I would also like to point out what are the problems, for the solution of which we must look to the laboratory and clinic. When we will a motion with some positiveness, the knee-jerk is reinforced, and so is the muscle-jerk. This happens whether the muscle called to act exists, or has been lost by amputation, or is above the knee in walking, or below it. If it were only to occur when the muscle is (let us say) in the feet, or below the knee, we might think of the nerve influence as passing through the crural centre, but a wink does it even better. How then does the efferent force reach the knee-centre? Is it a mere overflow, or is it an inhibitory act releasing the crural centre from cerebral control, and what columns of the spine must in any case rest uninjured to enable it to occur? Also what is the time of this reinforcement?

Then, as to sensations. I pull at a hair on the arm, and get prompt reinforcement of the knee-jerk. In this case does the afferent impression reach the sensorium first, and then affect the knee-jerk? Is the time of motor and sensory additions alike, or how nearly? Does the pinch of a foot influence the knee-jerk as the afferent impression goes up the spine, or does it first reach the sensorium, and act thence downward on the centres finally concerned in the knee-jerk?[1]

Emotions increase the knee-jerk. Do these act so as to set the spinal centres free, or is their influence also one of overflow?

Thus at every step the question of overflow or inhibition faces us, and in disease it is still the same. Certainly in health either explanation seems competent. But in disease and injury this is hardly so. When we cut the cord a state of shock, so called, occurs, that is—the reflexes and the knee-jerk are lost for a varying time. This may be merely exhaustion from a tremendous hyper-physiological excitation. Recovering, the knee-jerk and reflexes get more and more sensitive, and, at last, reach the normal and rise far above it. Why do they go on increasing, unless the pathological changes at the point divided act as irritative reinforcing foci? Again, in some spastic palsies, the knee-jerk being enormous, it is easily reinforced by winks or hand acts. It is hard here to conceive of the cerebral influence as largely cut off. Indeed it is not. Volition exists and is really good, but not competent because of the rigidity it causes. Generally, in all irritative spinal maladies the knee-jerk rises before destruction of the centre checks it. Also, after section of the cord, inhibition does not explain the gradual increase of excitability, while it is explained by the coming on and increase of inflammation at the lower surface of the section and the sequent changes.

Suppose, now, we can show that one volition reinforces another—*i. e.*, that the tired right hand gains vigor from sudden coinstantaneous use of the left hand. Either this is overflow, or else the willing of motion in the untired left hand must be supposed to relieve the tired centres from inhibition, and thus enable them better to obey the will they are failing to obey. If we accept overflow to explain such volitional reinforcement, there is no reason why we should not do so in regard to knee-jerk reinforcement.

Men who hold theoretic explanations too tightly, are apt nowadays to get sharp lessons. Yet, on the whole, it is often wise to possess some binding explanation of groups of facts. It is helpful in many ways. Possessing no certainty, I most incline, for the present, to look upon all reinforcements as overflows, and to consider all abnormal increase of knee-jerk as the product of irritative lesions. Physiologically, the conception of innumerable effluences of energy, motor, sensory, emotional in endless activity fills us with wonder and tempts one, however we explain them, to speculations remote from the purpose of this lecture.

Before dealing with the little there is to add as to ten-

circuit (faradic). A current powerful enough to excite the muscles will be found up to a certain point comparatively incompetent to occasion reflex stimulation of the cremaster.

[1] In the case of fractured spine (spoken of later in this lecture), there was every reason to believe the paths from leg to brain, and from brain to leg, were cut off. I examined this case with Prof. Osler, and both were satisfied of the completeness of the isolation. At last, after many blows on the right knee tendon, it began to respond better, and then we found it could be reinforced by a grimace, so that here was a path open from brain to leg. Also, it was not reinforced by a sensation (cold from ice). This seems to be a novel use of reinforcement.

don-jerks elsewhere, I desire to allude to the last facts which have been born of Jendrássik's discovery. My friend Prof. Bowditch, of Harvard, has been studying with care the time of reinforcements. His result is most interesting. I quote, by permission, Dr. Bowditch's brief summary of his paper, which is not yet in print.

"A sudden, brief muscular contraction reinforces the knee-jerk when the latter occurs within a brief interval of time (less than 0.25 second) after the former. With a longer interval the reinforcement gives place to an inhibition. With a still greater length of interval this inhibition disappears, so that when the blow on the tendon follows the muscular contraction with an interval of 1.06 second, the knee-jerk has its normal value. The interesting feature of the result is, to my mind, the evidence of a sort of oscillatory activity, or rather change of irritability in the centres concerned in the knee-jerk. I attach no particular importance to the figures I have given. They will doubtless have to be changed when more observations are accumulated. It would be interesting if this period of oscillation of the nerve centres should be found to differ in different persons, after the manner of the personal equation of astronomers."

This discovery that a sudden brief reinforcement first increases knee-jerk and then lessens it for a brief season is curious. The latter may be read as a brief expression of fatigue in the centre, or as interference of nerve waves; coincidence with increase, interference with decrease of knee-jerk.

Let us now turn again to the muscle-jerk. When a blow falls on a muscle, is the response purely the answer of intrinsic muscular irritability? This is a question which so far seems not to have been asked. The muscle shortens when struck, even though without spinal connections; but as I have already said, it may be that so long as these are whole, muscle-jerk may be like knee-jerk, and profit by spinal contributions to its coarser phenomenon. If it be a double phenomenon, its curve should show this fact and exhibit a double ascent, since the time of the muscle-jerk and its spinal addition cannot be one.[1] If the whole matter is but a response from a toned muscle, then we should have but a single curve.

The direct muscle-jerk must be familiar to all the observant among you, as seen easily when the percussion hammer strikes on the thin chest walls and instantly the pectoralis fibres, for about the width struck, contract from end to end. They have been violently pulled upon by the indenting hammer; a coarse, powerful excitation. You observe their responsive contraction. Next, at the point struck, you see a small hump quite slowly form and as slowly disappear. The first phenomenon you can see in all muscles more or less well; the second is not so easily obtainable. As concerns the first, it varies as do tendon-jerks. It is reinforcible and obeys the same laws as these do. In the muscle backed by bone, as on the chest or over the scapula, it is well exhibited; but also in other muscles it is well shown. The arm muscles are especially sensitive, and it is possible to pick out muscles as we do with electricity.

In the leg it is more difficult to get as good responses, except in thin people; and here, as elsewhere, we get exaggerated effects, near to the "nerve-points" of Ziemssen. To get the best results slight extension is needed. The pull on a length of muscle can only be had when the tissues are so mechanically stretched as to enable a blow to pull sharply on a length of fibres. Extreme tension lessens the response. In the feeble, and in the tubercular, the direct muscle-jerk is best. Partly, this is due to the great effect of blows on uncushioned muscles. Partly it is, I suspect, physiological, but whether from increase of intrinsic excitability, or from spinal contributions is not known. In some diseases, as in ataxia, it increases.[1]

The hump which slowly rises at a right angle to the longer rise of a length of fibres is the direct effect of the impact. Over muscles backed by bone we get it best, in either health or disease. It is in its larger expression and where found in other muscles than those mentioned, more or less, a sign or an accompaniment of feebleness. If we kill an animal, this response to a blow increases for a time, and in some diseases, with nervously isolated parts, is increased. Stokes mentioned it about 1848, and I experimented and wrote upon it in 1858; and often since it comes up as a re-discovery.

In section of the spine, or fracture with like result, the muscle changes are curious. I show you an illustration from one of Dr. Osler's cases: here is a fracture of the spine, at the ninth dorsal vertebra. It took place early in April, 1888. There is as you see, no sensation for pain. Pin pricks do not bleed, for this is not, as described, to be found only in hysterical anæsthesia. There is no voluntary motion.

I strike the leg-muscle anywhere, it moves better than usual in its length, but, also, the local hump is huge. I never before saw it so remarkable. Even a pinch causes it. The observation is to me a novel one. And observe that there is a spot of local gangrene on the heel. Some undamaged ganglia exist below the seat of injury, or we would not have even the faint knee-jerk seen after several blows on the right tendon. What is the reason for the peculiar irritability to a blow? Electrical tests show, I am told, no remarkable degenerative reaction. Possibly there may be an increase of muscular irritability from chemical irritative changes in the muscle, but the whole subject awaits more careful study.

In practice we have to deal only with ankle-jerk, knee-jerk, and biceps-jerk, and chiefly with the latter as a means of learning when certain spinal maladies are invading the arms. As concerns biceps-jerk, I hear men complain that they cannot get it. Let the patient rest the bared limb on the arm of the chair in which he sits. The operator feels for the insertion of the biceps tendon; puts on it a finger and strikes upon that, thus. He at once feels in the finger the muscular response. In thin persons a blow directly upon the tendon causes the arm to jerk visibly. Sometimes I put on the tendon a bit of caoutchouc, and strike on this firm cushion.

Pray attend to the fact that the biceps tendon, like the knee-cap tendon, must be stretched to enable us to influence the attached muscle. Elbow-jerk is certainly less easy to get than knee-jerk, but it is worth looking for, and is often a valuable aid to prognosis.

While much care is apt to be given to the presence of clonus, a symptom only as a rule present in excess in

[1] This is, of course, if the knee-jerk and measurably the muscle-jerk be reflexes.

[1] Buzzard first pointed this out in an admirable article on knee-jerk, from which some of my arguments are taken.

disease, the normal expression of it, ankle-jerk is, I fancy, less sedulously studied. The usual mode of evolving ankle-jerk is to strike a smart blow on the stretched tendo Achillis. The patient being seated, or supine, take up the foot in the left hand and flex it so as to make slightly tense the tendon on which you strike, and preferably with the hammer. If there be no response, flex the leg slightly and repeat the blow. The reaction of the muscle is felt by the hand which holds the foot. To show it better, I loop a thin rubber band over the tip of the sole, and with it make a slight extension. As now I strike, you see the foot move because of the contraction of the abruptly stretched gastrocnemius. I take another case, and show you another method which I do not see elsewhere used. It seems to be new. With the foot as before, I strike on the sole of the foot. This, also, acts so as to make a quick pull through the tendon on the muscle. It is less awkward than the blow on the tendon, and shows best with the boot or shoe on the foot. In the books you will see mentioned what Gower calls the "front tap," which now I show you. The foot being flexed, we strike a blow on the anterior muscle, or with less effect on the tibia. You see that the foot moves, showing that the calf muscles have acted. Gower mentions this as seen when the phenomena are in excess, but, as a fact, this reaction is common enough in the healthy, if the blow be given near the ankle. I believe that the front tap phenomenon has been sometimes considered as positive evidence of organic disease of the cord. As I now show it to you, it is strongly marked in spastic disorders, and more mildly expressed in some well people, or in neurasthenics.

And now as to clonus. It is easy to illustrate, but, in some cases, needs a little care to develop. To get it, I place the subject (a well man) so as to have the knee a little bent, then I suddenly flex the foot. You see I get no answering motion. This is because the flexion so made is not abrupt enough to secure even a single reply, for, remember, a sharp blow on the tendon or sole does usually secure this in health. In a spastic case, like this boy, who has Pott's disease, the apparatus involved is excitable enough to go on responding so long as I keep up flexion of the foot.

See what happens. I push up the foot and the stretched muscle moves the foot. My continuous pressure once more stretches the muscle. Again it moves, and so on, till the power to reply is exhausted. We may substitute a weight, or an elastic attachment, for the hand and see the motion continue for an hour or more. Here is a set of curves written by causing the foot to record its motion on a moving sheet of smoked paper. A second marker notes the time. You see the clonus is seven to the second. It varies from five to nine, and the time of the two feet taken together varies a little. It causes no fatigue, although moving for an hour at the rate of 420 to the minute.

In milder cases it ceases after a few movements, but we never see clonus continuous and energetic save in true spastic cases. In milder examples, as in hysteria and neurasthenia, we must consider it as to amount and vigor, and as to its presence with other symptoms. I now speak of what you get by using the hand alone, and keeping up pressure. You may sometimes, though rarely, get it in a mild form in health—that is, in place of a single response to the blow on foot or tendon, two to six, such motions occur, each slighter than the last. There is, of course, in all this a vast amount of physiological interest upon which I have dealt but slightly.

I come now to say what amount of practical use we can get out of the varied phenomena I have described. Keep clearly in mind that if you find a tendon-jerk lessened or extinct you must try if it can be revived or increased by motor or sensory reinforcements. Absence is most suspicious, but do not let this alone make you decide that you are in the presence of coarse spinal lesions. I know two ideally healthy people, who have no knee-jerk, ankle-, or biceps-jerks; no reinforcements. Both have direct muscle-jerk, non-reinforcible. Explain this, I cannot. I cannot even guess at an approach to an explanation, but it is enough to make one careful. Taken alone, this negative sign has little value. It usually means, when present with other suspicious signs, that the nerve loop from muscle to spine, and back to muscle—*i. e.*, the muscle-muscle loop—is damaged in the spinal centre, in the nerve loop afferent or efferent. It may mean, also, that the muscle has itself lost power to respond. To know what has suffered, we must appeal to other symptoms. It tells us that something is wrong, but not what is wrong. Thus it lessens, and at last is lost in posterior sclerosis, and in sclerosis of the gray anterior columns, and also in hypertrophic muscular palsy, thus affording illustrations of loss of knee-jerk from disease of either the sensory or motor columns, or the muscular mass. I do not see that, as yet, we have got out of the knee-jerk changes all that we may yet hope to win. Except in locomotor ataxis, and in the early recognition of spastic states of the cord, it has little direct practical usefulness. But it has a negative value, and a great one, owing to its remarkable sensitiveness. Let us deal first with its negative utility.

It is a common case to see, nowadays, a man of thirty, free from constitutional taint, or with a doubtful history, ruddy, and well nourished. Otherwise he is easily tired, and this may apply to body and mind, spine and brain, or to either. He has fugitive numbness of the extremities and ache in the cervical or lumbar spine. Beyond this he has no spinal symptoms, and his knee-jerk, ankle-jerk, and elbow-jerk are perfect. You may be sure that he has merely neurasthenia. But if he be very emotional, and this exaggerates his tendon-jerks, and even causes slight clonus, you may have to wait long, and be careful in order to get undisturbed results. It is an every-day experience that in suspicious cases integrity of tendon-jerks helps us to clear views. It is quite certain that some cases of posterior sclerosis begin with excessive knee-jerks, which by and by fail, and at last disappear. For a time they can be recalled by reinforcements, but, sooner or later, are lost altogether.

An interesting case of ataxia of the arms with nearly normal legs was recently in our wards. I use it here to illustrate the history of tendon muscle-jerks in ataxia, and also to call attention to the way in which we state with brevity such phenomena.

Modern note-taking is so elaborate that whatever rationally shortens its method is a pure gain. Let me point out how you can record these phenomena briefly in a sort of equation, and refer you to the paper by Dr. Lewis and myself for fuller statements.

I give below a sufficiently full explanation of the abbreviations:

Arms: R. E. J. o. Rt. o. L. E. J. o. Rt. o.
R. M. J. + +. Rt. o. L. M. J. +. Rt. o.

Legs: R. K. J. 25°. Rt. 40°. L. K. J. 27°. Rt. 36°.
R. M. J. quadriceps, n. Rt. n. L. M. J. n. Rt. n.

Station: $\frac{2}{A}$, $\frac{1\frac{1}{2}}{D}$. Eyes shut.

Explanation.—Arms: Right elbow-jerk, none. Reinforcement, none, etc. Right muscle-jerk, excessive. No reinforcement, etc. Legs: Right knee-jerk, 25 degrees Lombard's meter. Reinforcement sends lever to 40 degrees, and these records mean maximum of several trials. As concerns muscle-jerk, n means normal, + excessive, and — less than normal. Station $\frac{2}{A}$, $\frac{1\frac{1}{2}}{D}$, means the anterior sway is 2 inches, and the dextral 1½.

Of course, in the not rare examples of posterior sclerosis with lateral column involvement and spastic gait, there is exaggerated knee-jerk, but also, I am sure, as I have said, that excess of knee-jerk may exist in the preataxic stage of unadulterated disease of the posterior columns.

As Lewis and I have urged, it is in the arms of men who have ataxic legs and no knee-jerk that we can follow the whole series from the normal to lost elbow-jerk. And so also muscle-jerk +, with + reinforcements through to loss of all but intrinsic muscle-jerk. I saw, to-day, an ataxic man. He has knee-jerk o. Reinforcements o. Arms, elbow-jerk and reinforcements + +, and muscle-jerk and reinforcements + +. He has no ataxia of arms, but the faintest traces of occasional numbness in the finger-tips. With shut eyes he falls.

I believe that attention has not been called to the fact that, now and then, in diseases a blow on the patellar tendon causes response in but a part of the biceps mass. I saw this lately in a case of partial destruction of a segment of dorsal cord. For several days, only the vastus internus seemed to act, and that feebly. My colleague, Dr. Sinkler, has made a similar observation recently in a case of syphilis of the dorsal cord. Only the external vastus responded.

I cannot enough warn you against regarding even entire loss of knee-jerk as always a grave matter. At the same time, it is a sign not to be neglected. The sensitiveness of knee jerk, its delicacy, makes it valuable. But illustrations are better than mere general statements. I saw last week a case of mild non-febrile muscular rheumatism. The patient was in bed and under daily use of sixty grains of salicylate of soda. For a week or more he had much lessened right knee-jerk, and none on the left, and no reinforcement. It came back a few days later. The cause of the loss I do not know.

Again, a case of frank meningitis in a lad of sixteen was rapidly relieved. The knee-jerks were good—rather excessive. About the fourteenth day a dull, but very painful ache in the lower dorsal region came on, chiefly on the left side. There was, also, at this time, a sudden albuminuria without signs of congestion. I was not secure as to the cause of the ache, until I observed entire loss of left knee-jerk. I then felt pretty certain that the pain was due to a new focus of meningitis. There was little else to help me, for all through there had been slight pricking sensations in the feet, and this did not largely increase with the coming of the dorsal ache. I next observed, with interest, that while the left knee-jerk was gone there was excess of left foot-jerk from a blow on the sole, and even slight clonus.

There are many disorders, some maladies, and certain normal conditions in which we meet with increase of knee-jerk and ankle-jerk, or even presence of faint clonus. Of some of these I have already spoken. Only the hasty, or the unwary, could be taken in by the excess of knee-jerk, or the slight clonus of neurasthenia or hysteria. Care will, however, be needed, because it is in these very cases that emotional reinforcements are most violent, and because, also, we now and then meet with incipient spastic palsies, in which there are associated hysteric or neurasthenic states.

There are, of course, many forms of disease which give rise to spastic paraplegia, and in some of them, the earliest distinct warning is to be found in the increased knee- and ankle-jerk. This is especially the case in some of the insidious forms of syphilis, which seem, by preference, to affect the lateral colums of the spinal cord. In the absence of other symptoms which help to reveal improvement, diminishing knee-jerk in spastic disease becomes a valuable index of the change for the better in the disease which at first caused its increase. In the future. Dr. Lombard's meter or my simpler one will be of great value as giving us reasonably precise records of knee-jerk.

I have limited myself, in this lecture, to tendon-jerks and muscle-jerks in chronic neural maladies. A not uninteresting, and a little explored subject, is the study of these in acute diseases. I have said least of ankle-clonus, because, this winter, clonus in general has been the subject of careful experimental study by Dr. Morris Lewis and myself. Our paper will shortly appear.

ORIGINAL ARTICLES.

A CASE OF SÄNGER-CÆSAREAN SECTION.[1]

BY JUSTUS OHAGE, M.D.,
OF ST. PAUL, MINNESOTA.

ON May 29th I performed Cæsarean section, after Sänger's method, upon a rachitic dwarf, who died June 3d, from septic endometritis resp. diphthritic endometritis.

Although the result in regard to the life of the woman was most unfortunate, the result in regard to the operation was as satisfactory as could be wished for, and fully demonstrated the value of Sänger's method, a method which has completely revolutionized operative midwifery in Europe.

It would at first seem absurd to call an operation satisfactory when the patient dies, but by a little attention to a few facts which I shall relate, it will be seen that the fatal termination was in no way due to the operation *per se*, but to a process which I fear

[1] Read at the annual meeting of the Minnesota State Medical Society, at Duluth, Minn., June 17, 1887.

has repeatedly been witnessed even in women who had a perfectly natural and easy delivery.

In our State, with its vast numbers of foreign emigrants, who in their native countries, to a great extent, belonged to the poorer laboring classes, among whom rickets is no uncommon disease of childhood, the indications for artificial delivery, on account of deformed pelvis, much oftener present themselves than in communities where the well-shaped American woman predominates. The influence of the teachings of our British brethren had caused us to try first every possible obstetrical expedient, as craniotomy, embryotomy, etc., and to look on Cæsarean section only as a forlorn hope. The natural consequence was that most of our cases of Cæsarean section were forlorn hopes before they were operated upon, and that the statistical records put us at the bottom rank with our British confrères.

To Dr. Robert P. Harris, of Philadelphia, is due the credit of endeavoring to introduce Sänger's method into this country. Comparing our results with those of the Dresden and Leipzig maternities, he comes to the conclusion that it is quite time that we should follow the example of the German rather than of the British operator.

The records of the German maternities show that Cæsarean section, after Sänger's method, is not as fatal even as craniotomy, and when performed in good season, and with careful uterine closure, a favorable result to both mother and child may justly be expected. In the closure of the uterine wound lies the success of the Sänger operation, and even after his original mode of muscular resection and peritoneal undermining has been abandoned as unnecessary, it is still proper to call the operation by his name, for it was he who first pointed out the necessity of deep muscular and superficial sero-serous (Jobert-Lembert) sutures, by which alone the peritoneal surfaces could be brought into such close contact, the tension of each individual stitch moderated, and the gaping of the uterine wound prevented, through which uterine discharge could escape into the peritoneal cavity. The value of this method is shown by the fact that Germany in seven years, out of 33 cases, saved 29 women and 30 children,[1] a mortality of less than 13 per cent., while Lawson Tait, but a short time ago, claimed a mortality by Cæsarean section of over 99 per cent.[2] In considering this low mortality of the German maternities, we must and will hope for the time when the Sänger operation will supersede the piecemeal extraction of viable children, that it may no more be necessary to destroy one life to save (perhaps) another.

"Parce matri et proli, si parcere possis."[3]—*Berruti.*

[1] MED. NEWS, March 26, 1887.

[2] MED. NEWS, July 17, 1886.

[3] "Save the mother *and the child*, if save thou canst."

I had this point specially in view, and to turn the tide which runs yet among us in favor of craniotomy *vs.* Cæsarean section. For this reason, and to demonstrate the different steps of the operation, I had invited a limited number of surgeons from different parts of our State to be present, whose professional standing leads me to think that if an indication for abdominal delivery in their respective territories should occur, they would certainly be on hand and utilize the points demonstrated on this occasion. The interest felt by these gentlemen can be best demonstrated by my asserting that every single one of those invited was on hand, though some of them had to travel hundreds of miles. Their zeal and sympathy are a guarantee that they will be coöperators in a work which is so eminently filled with good, and which must be done—the sooner the better.

CASE.—My patient was a rachitic dwarf, twenty-nine years of age, and of German nationality. Last menstruation August 22d. Quickening January 10th. She called at my office some time in March, telling me she was *enciente* and requested my attendance at her confinement, for the old women in her neighborhood had told her she would have a hard time. She expected her delivery about the 1st of June. An examination revealed a kyphotic spine with lumbar compensating lordosis, depressing the sacrum to such a degree that it lay almost horizontal; the promontory nearly above the symphysis pubis, distance barely one and three-quarters inches. Transverse diameters elongated and irregularly contracted. This condition of the pelvis called for delivery by Cæsarean section, especially as the arching of the sacrum would have made craniotomy, had it been contemplated, fully as dangerous to the mother, to say nothing of sacrificing the child.

I saw her about a month later, in consultation with my friend, Dr. Park Richie. We both made a careful examination, and came to the same conclusions in regard to diagnosis and treatment. In order to have her in the best possible condition I secured for her a private room in the St. Joseph's Hospital, through the charity of a few ladies, and had her removed there about a week before her expected confinement. I had concluded to induce labor for fear that it might set in just at a time least desirable for us, when some of us had perhaps just been in contact with infectious diseases, and when antiseptic precautions might not be carried out as fully as they ought to be.

Therefore, on the evening of May 28th, I saw her again in consultation with Drs. Richie, Nelson, and McLaren. We all agreed on a conjugate diameter of one and three-quarters inches, and the course to pursue, and concluded by inducing labor by the introduction of an elastic catheter which ruptured the bag of waters and caused their escape. It is needless to say that all antiseptic precautions were taken. She also had taken daily baths, and disinfecting vaginal injections. The catheter was removed and we left her for the night, to await the setting in of labor.

When I called the next morning, shortly after 7 o'clock, I found that she had had sufficient pains during the night. The os uteri was dilated to the size of a silver quarter, and uterine contractions were well pronounced. Her bowels were moved by enema, and she was put in readiness for the operation. Fœtal movements were strong, heart-sounds plainly audible to the right of the median line, and the occiput to the right forward.

At 9 A.M., May 29, 1887, I operated assisted by Drs. Richie, Nelson, McLaren, Quinn, Spencer, and Philips, and nurse Frazer, and in presence of a number of invited surgeons. Ether narcosis. Bladder emptied, mons veneris shaved, vagina and abdomen again disinfected. Incision in median line, beginning two inches above the umbilicus and ending one and a half inches above the symphysis pubis. Peritoneum opened in the usual manner, The womb being righted and the abdominal walls firmly pressed against it, I opened it by a few quick sweeps with a scalpel, carefully avoiding the lower uterine segment. The abdominal wound was about nine inches, the uterine about seven inches in length. The child presented with its left shoulder. I extracted it, breech first, without much difficulty, handed it to an assistant, who tied and divided the cord, and who took charge of it. It was a female child, cried at once lustily, weighed seven pounds, and is doing nicely.

The placenta lay to the right, backward. A rubber tube was now passed around the uterus at its upper vaginal junction, the uterus lifted out of the abdominal cavity and a large, warm pad of Listergauze put over the abdominal wound to prevent the prolapse of the omentum and bowels, and the entrance of extraneous matter into the abdominal cavity. So far very little blood had been lost, and after the tube was applied there was no more hemorrhage. The placenta and membranes were easily detached and removed, the womb thoroughly mopped out with a 1 to 4000 corrosive sublimate solution, and a quantity, enough to cover thickly the whole endometrium, of equal parts of iodoform and boric acid sprinkled in.

The walls of the womb were now firmly pressed together, and I proceeded to close the wound after Sänger's method, without resecting any muscular tissue or undermining the peritoneum. I used a long, straight, round needle and carbolized silk. The needle was inserted one-third of an inch from the edge of the wound through the peritoneum, through the muscular substance, and out again before reaching the mucosa, then on the opposite side into the muscular tissue above the mucosa, and out through the peritoneal, again one-third of an inch from the edge of the wound. None of the stitches was tied at once, only after all were *in situ*, and a flat sponge removed which had been placed in the cavity of the womb to catch up any blood, were they knotted and cut short. There were eleven deep muscular sutures in all. Next came the sero-serous row of sutures (Lembert-Jobert's) similar to those which we use after resection of the bowels. They were of fine carbolized silk. To apply these I used a half-curved needle in a holder. The needle was inserted between the deep stitches and over them, just as necessity demanded, and entered about three-eighths of an inch from the edge of the incision line and out again at incision line, then in again at and out three-eighths of an inch from incision line, taking in only the peritoneum. Each thread was knotted as soon as applied, and when all seventeen were *in situ* there was an uninterrupted apposition of serous surfaces covering the muscular stitches and completely closing the uterine gap. The same mixture of iodoform and boric acid was sprinkled over the line of incision, the tube removed and the peritoneal cavity cleaned out, though nothing had escaped into it. A few hypodermatic injections of ergotin and massage brought on good uterine contractions. The womb, which at first, after the removal of the constricting tube, looked rather pale soon assumed a livid color, and when all signs of bleeding had stopped it was returned to its place, and the abdomen closed in the usual manner by eight deep and fourteen superficial silk sutures.

Time from first incision to delivery of child, six minutes.

Time from first incision to application of dressing, thirty-five minutes.

Time given in text-books, one hour and fifteen minutes.

The dressing consisted in iodoform sprinkled over the line of incision, and a large pad of absorbent cotton held in place by a broad binder, the ragged ends of which were tied over the cotton pad. There was no shock, the temperature of the operating-room being above 90° F.

The patient was put in a warm bed, she reacted well, complained of no pain, and would not believe she had been delivered until the child was shown to her.

At noon, temp. 98.4°; pulse 96; cracked ice *ad lib.*; catheter every six hours. At 7 P.M., temp. 98.6°; pulse 108; cracked ice, iced milk, feels comfortable, one-sixth of a grain of morphia subcutaneously.

May 30. 7 A.M., temp. 99.5°; pulse 118; cracked ice, iced milk; lochia normal; ice, wine, and milk. 7 P.M., temp. 99°; pulse 108; cracked ice, iced milk, coffee; lochia normal; comfortable.

31st. 7 A.M., 99°; pulse 108; cracked ice, beef tea; wind passes and urine yet drawn; lochia good; comfortable. 7 P.M., temp. 98.5°; pulse 108; everything favorable; passes water and wind notably.

June 1. 7 A.M., 98.6°; pulse 108; everything favorable; bowels moved by injection; lochia good; milk begins to appear. Beef-tea, milk, coffee, ice, and wine. 7 P.M., temp. 98.6°; pulse 108; comfortable and feels like sitting up.

2d. 7 A.M., temp. 99.4°; pulse 110; restless, lochia scanty, no chill, tympanitic distention of bowels, abdomen tender, vomited once or twice. Enemata and five grains of calomel ordered every four hours; cracked ice and one-quarter of a grain of morphia subcutaneously. At noon Professor Ritchie saw her again with me. Temp. 98.6°; pulse 118; respiration, which up to now had been normal, 28. Ordered one ounce of digitalis infusion with each enema. No movement nor flatus from bowels

yet. Ice-bag to abdomen. At 7 P.M., her condition was much worse. Temp. 104°; pulse 130; vomiting continues. I gave her another one-quarter of a grain morphia injection, and as her condition kept rapidly getting desperate, I removed the dressing, opened the abdominal wound at its lower third, and introduced a drainage tube, through which I washed out the abdominal cavity with a warm 1 to 4000 corrosive sublimate solution. The water returned just as clear as it was injected.

It was evident we were dealing with a septic process by far too rapid and powerful to control. Her pulse ran up to 150, 160, 180, as far as we could count it. Subcutaneous injections of camphor and ether, and of digitalis had no effect whatever. She became delirious and more and more collapsed. At 10 P.M., being fully aware that she had but a few hours to live, I had ice-bags and ice-cap removed, and as she began to show signs of suffering one-quarter of a grain of morphia was given hypodermatically. She died a little after midnight, June 3d.

Autopsy.—June 3d, 9 A.M., Drs. Nelson, Schulin, and Phillips. Examination confined to abdominal organs. Body of a well-nourished, though deformed, woman. Total length three feet ten and one-half inches. Kyphosis of dorsal, lordosis of lumbar region of spine. Legs large, but excessively short. Large panniculus adiposus. Wound in median line of abdomen agglutinated by first intention, except at lower angle, where a rubber drainage tube projected. On opening the abdomen the bowels were found to be distended by gas, but of a natural color; the peritoneum of natural color and consistency throughout, except a small spot in the neighborhood of the left Fallopian tube, which was slightly discolored. No blood, pus, or fluid of any kind in the peritoneal cavity. The uterus well subinvoluted, the size of a child's head. The uterine wound perfectly closed and united, every stitch in its place, resisting a considerable strain which was made upon the sutures after the womb had been opened at its posterior portion to test their strength. Thickness of uterine walls three-quarters of an inch. Muscular substance of good color. The endometrium well covered with iodoform, but discolored to the extent of a few square inches, especially in the neighborhood of the left Fallopian tube, where a grayish exudation was present. No bad odor anywhere, but that of iodoform. Ovaries, tubes, etc., healthy. Pelvis generally contracted, conjugate nearly two inches.

Diagnosis.—Endometritis septica (diphtheritica).

Here we have a case, which clinically and pathologically exactly corresponds to one of our old-fashioned childbed fever cases. Especially to that variety where the poison in an overwhelming quantity, so to speak, is conveyed through the lymphatics into the system and where all measures, as curetting the endometrium, intrauterine injections, active catharsis, etc., fail to save women who had just fulfilled their highest and noblest mission.

If we consider how faithfully antisepsis in all its details was carried out in this case it is difficult to answer the question, how and whence infection took place. And yet we cannot harbor the idea that woman is like a scorpion which carries within its body the poison with which to destroy itself!

The comparatively short space of time which it took to do the operation is noticeable. There was neither hitch nor hurry. For this I am greatly indebted to my corps of often tried and able assistants to whom I take this opportunity to acknowledge my gratitude.

59 Irvine Park, St. Paul.

AN UNPLEASANT EXPERIENCE WITH THE NEW LOCAL ANÆSTHETIC—HYDROCHLORATE OF ERYTHROPHLEINE.

By SAMUEL THEOBALD, M.D.,
one of the surgeons to the Baltimore Eye, Ear, and Throat Charity Hospital.

After reading, with interest, Dr. Alt's article upon hydrochlorate of erythrophleine in the February number of the *American Journal of Ophthalmology*, I procured through Messrs. J. H. Perkins & Co., of Baltimore, a small quantity of the salt made by Merck, wishing to test, for myself, the action of this last-discovered local anæsthetic. On March 23d I used it for the first time, making but a single application of a 1 : 1000 solution to the eye of a man from whose cornea I wished to remove a foreign body. The anæsthesia which resulted was slow in manifesting itself, was preceded by considerable ciliary irritation, and was not as profound as that which is usually produced by cocaine. The foreign body was removed, however, twenty minutes after the application, without appreciable discomfort to the patient, who was then kept under observation for about an hour longer in order that the subsequent behavior of the eye might be observed.

During this time the pupil of the eye into which the erythrophleine had been instilled became decidedly smaller than the opposite pupil, and accompanying this myosis there was an unmistakable reduction in the intraocular tension. The myosis was by no means as pronounced as that which is induced by even a weak solution of eserine, but the reduction in tension was very marked, and it occurred to me at once that this property of the new agent might make it of value in the treatment of glaucoma. Hirschberg, it was true, had called attention to the fact that rainbow-colors were seen by several patients into whose eyes he had instilled a 1 : 500 solution of erythrophleine; but, knowing that the seeing of rainbow-colors about a candle-flame does not necessarily indicate high intra-ocular tension, but rather misty media, I felt myself justified two days afterward in trying the effect of the erythrophleine in a case of subacute glaucoma, in which eserine had been used with little effect, and in which I was about to perform an iridectomy.

The patient, a man, forty-nine years of age, and of full habit, was seen at my office. A single application of two drops of a 1 : 1000 solution of erythrophleine hydrochlorate was made to the affected (L.) eye. The condition of the eye before the instillation was as follows, a two-grain solution of eserine having been applied to it the previous night—pupil somewhat contracted; + T. 1; cornea very slightly misty (as seen by oblique illumination), but details of fundus well made out, notwithstanding some post-polar lens opacity; V. (with Ah. $\frac{1}{24}$ corrected) = $\frac{20}{XLV}$ (?). Within a very few minutes after the instillation of the erythrophleine the eye became more irritable, slight pain was felt in it, and the conjunctival and subconjunctival injection, which previously were insignificant, became much more marked.

At the end of fifty minutes, the symptoms of irritation having increased rather than abated in the interval, the condition of the eye had undergone an astonishing and rather startling change. Instead of the almost imperceptible corneal mistiness previously observed, there was now a very marked cloudiness of the cornea, and apparently of the aqueous humor as well, so that the iris was seen very indistinctly, and the retinal vessels could be distinguished with difficulty. It was thought best not to alarm the patient by testing the sight of the eye, but it could scarcely have been more than one-fourth of what it had been a few minutes before. The tension was probably a little increased, but certainly not markedly so. A subacute glaucoma had, apparently, been converted into an acute attack, and the necessity of an immediate iridectomy suggested itself. I preferred, however, not to operate in the condition the eye was then in, if it could be avoided; so I applied a four-grain solution of eserine sulphate, and, keeping the patient under observation, was gratified to find in about an hour some change for the better in the condition of the eye, the pupil contracting, and the cornea becoming somewhat less misty. Four hours later (*i. e.*, at 4 P. M., the erythrophleine having been applied at 10 A. M.), there was but little further change in the condition of the eye, and I decided to perform an iridectomy on the following day, a two-grain solution of eserine being directed to be used in the meantime.

The next day the patient reported that he had passed a very uncomfortable night, suffering more pain in the eye than he had ever experienced before; but, since morning, the pain had disappeared, and at the time the iridectomy was performed (2.30 P. M.) the eye had returned to about the condition (as to clearness of cornea, etc.) in which it was before the application of the erythrophleine. The eye did well after the iridectomy, and the subsequent progress of the case presented nothing of an unusual character or worthy of note.

I have not been disposed to experiment very freely with erythrophleine since meeting with the experience which I have related. In several cases of granular lids with pannus, however, which had been treated with nitrate of silver, preceded by instillation of cocaine (4 per cent.), I substituted for the latter one instillation of erythrophleine (1 : 1000), and in every instance the patient subsequently reported that the eyes felt worse, and that the pain experienced was more severe and more persistent than when the cocaine was used.

PERNICIOUS ANÆMIA WITH JAUNDICE.

BY JOHN GUITÉRAS, M.D.,

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THE following case of pernicious anæmia, though imperfectly recorded, is deemed of interest; first, because it occurred in a colored man, and in the Southern States; second, because the case throws some light on the question of the relations between jaundice and pernicious anæmia.

George S., twenty-eight years old, was admitted into the Charleston City Hospital on January 25, 1888. He was a mulatto, with a large frame, and excellent muscular development.

On the 12th of last November he had been admitted to the surgical ward for the treatment of a large serpiginous ulcer, involving the right groin and portion of the scrotum. He refused treatment, and was discharged on the 24th. All that was noticed, at the time, about the man, beside the ulcer, was his stalwart form.

He was readmitted on January 25th, complaining of weakness, dyspnœa and cough. He stated that he had been feeling weak since last fall. He had been, however, working as a mason up to two weeks before admission. The diagnosis on his card for admission was pulmonary consumption. I found him very anæmic, but not emaciated. A physical examination of the chest proved that there was no tuberculosis, but a general emphysema of the lungs. The serpiginous ulcer was still present, though of smaller size. I ordered, therefore, the patient to be transferred to the surgical ward on the 27th. By this time he had had several paroxysms of dyspnœa, and I was asked to examine the patient again. I found a marked reduplication of the first sound. This symptom, taken in connection with the fever, the history of suppuration and the peculiar paroxysms, led me to diagnosticate infectious endocarditis. Under this erroneous diagnosis I received the patient once more in the medical wards on January 31st.

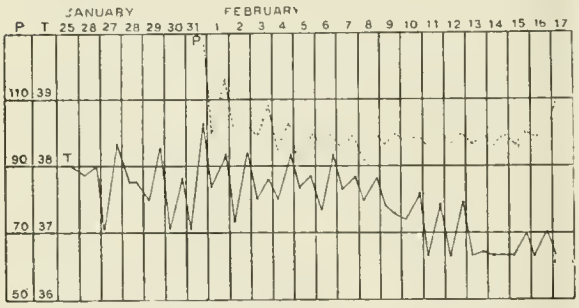
The following symptoms were observed: The mucous membranes were blanched, but the striking appearance of pernicious anæmia was masked by the color of the patient. The conjunctivæ were distinctly yellow. The skin of the front of the legs was scaly and purplish, as if marked by traces of chronic eczema. The eyelids were always more or less puffy, and the ankles swelled slightly when the patient sat up any length of time. This he was inclined to do in spite of orders to the contrary. His mood, in fact, was often buoyant, and some-

times flighty. He was easily tired, however, and would take to his bed.

He took very little food of any kind, and vomited very often. The vomiting was never spontaneous. The matters vomited consisted of food, and a frothy chyme of a light yellow color. There was no diarrhœa.

The patient had much cough at the time of admission, but this symptom subsided gradually. He complained of a constant uneasiness about the precordia, which was aggravated, at times, by paroxysms of precordial pain with suffocation. These occurred more frequently at night. The pulmonary resonance was exaggerated throughout the chest, and the emphysematous lung encroached upon the areas of cardiac, hepatic and splenic dulness. It was possible, however, to discern some enlargement of the left side of the heart. The heart sounds over the body of the organ presented a well-marked galloping rhythm. The intervening sound became so friction-like toward the last, that I concluded there must be some pericardial roughness.

The urine was examined soon after admission by the Resident Physician, Dr. A. H. Hill. It was found to contain biliary coloring matter, but no albumin and no sugar. The liver was found to be pushed down by the emphysematous lung. There was some enlargement of the liver and spleen.



Temperature chart. Pernicious anæmia.

On the 14th of January the patient began to appear dull and drowsy. The icterus became more marked, and the œdema of the face more pronounced. The swelling now produced considerable distortion of the features, the right side of the face being more swollen than the left on account of the decubitus. There was very little general œdema.

On June 17th the patient was comatose, and had been so since the previous evening. The inspirations were remarkably deep and regular. The heart beat 110 to the minute, but no pulse could be felt at the wrist.

A drop of blood was obtained this morning with difficulty, by sticking and forcibly squeezing the finger. The fluid had a reddish amber color. On microscopic examination the oligocythæmia was found to be extreme. Though the quantity of blood under the cover glass was sufficient completely to fill the space, yet the red corpuscles were found isolated and sparingly scattered. There was no marked poikilocytosis. In several fields no leucocytes could be found. Instead of making a more careful examination of the blood I satisfied myself with the explanation that some serum from the subcutaneous connective tissue had been pressed out with the blood.

The patient died on the evening of the 17th, without convulsions. The treatment consisted principally in the administration of gtt. x of tincture of the chloride of iron every three hours.

Autopsy twelve hours after death. There was some purplish discoloration of the skin on the anterior surface of the legs. The œdema was scarcely noticeable except about the face. The *panniculus adiposus* was normally distributed, and the color of the muscles was pale. These tissues were bloodless.

The lungs were found abnormally distended, covering much of the pericardium, though this sac was large. The pleural cavities contained a small amount of serous effusion stained yellow. The lungs, after removal, preserved their form and bulk, as if they were inflated. Near the anterior border of the left lung there was a small bleb of vesicular emphysema. The rest of the lungs was in a condition of universal lobar emphysema. There was no tuberculosis. A yellowish, frothy fluid could be expressed from the anæmic lungs. The pericardium contained about six ounces of serum decidedly stained with yellow. The visceral layer of the membrane presented a patch of chronic thickening upon the body of the right ventricle. There was no excess of fatty deposit. The heart was somewhat enlarged, especially the left ventricle, which was firmly contracted. The muscular tissue was pale but not friable. The ventricles contained each a small lump of yellowish clot, tangled with the cords, but no fluid blood. The mitral valves were somewhat enlarged and thickened at the edges. There was some thickening and opacity of the endocardium toward the apices of the papillary muscles. The walls of the large bloodvessels were stained yellow.

The peritoneum was blanched. The intestines, below the duodenum, were remarkably contracted, as they appear below the seat of an intestinal obstruction; the stomach and duodenum were comparatively dilated. There was no effusion into the peritoneal cavity. The peritoneum contained no excess of fat. The liver was somewhat enlarged; perhaps not indeed increased in volume, but flattened out, especially along the anterior border. The capsule was smooth and transparent. The color of the organ was dark bile-green. The section surface was smooth, and the parenchyma was uniformly infiltrated with bile. The acini were not distinct. The gall-bladder was half filled with bile, which was of a lighter color, and more fluid, perhaps, than usual. The biliary passages were not obstructed. The mucous chyme contained in the small intestine was evidently mixed with bile, being of the same color as the secretion in the gall-bladder. The mucous membrane was stained in the same manner. The stomach contained a small amount of pale yellowish fluid. The rugæ were not as prominent as usual, but the walls did not appear to be atrophied. The mucous membrane had a fatty appearance, and it was studded with ecchymotic spots to the number of one to the square inch. These had a

roundish outline, and measured from the size of a pin-head to that of a small pea. They were situated superficially, and some of them had been loosened, apparently by post-mortem digestion. The intestines were carefully searched for parasites, but none was found. The pancreas was somewhat enlarged and fatty.

The spleen was one-half larger than the usual size. The color was dark-purplish, and the consistence was firm. A considerable number of fine white connective-tissue trabeculæ were visible. The Malpighian bodies were not apparent. The kidneys were slightly enlarged, very pale and firmer than in health. The capsule was not adherent.

The medulla of the humerus, the radius and the ulna presented the same color as the spleen.

REMARKS.—My impression is that very few cases of pernicious anæmia have been reported from the South. Looking over the *Index Medicus* I find no case reported in any of the Southern medical journals, unless the two following be exceptions: W. Lee, a case of anæmia with excessive irritability of the stomach treated successfully by the hypodermatic use of ammonio-citrate of iron (*Maryland Medical Journal*, iv., 1878); and Miller, C. H., a case in search of a diagnosis (*Southern Clinic*, iv., 1881).

I confess that the error of diagnosis in this case has shaken my opinion concerning the rarity of the disease in the southern section of the country, for it has brought forcibly to me the possibility of being misled by the pigmented skin of the negro. The anæmias of this section, and of the tropics, certainly require extended investigation. The recent writers on tropical diseases of America do not mention, as far as I know, the special form of anæmia now under consideration, though they insist upon the pernicious tendencies of the paludal anæmia. One is inclined to suspect that cases of Biermer's disease may have been included in this category; but, it must be stated that the accounts given by students of tropical pathology do not coincide with what we still have to hold as a distinct disease under the description of Addison and Biermer. One case of pernicious anæmia, I find, has been reported from Havana, by Dr. Rijó, in the *Cronica Medico Quirurgica*.

Judging from my own experience, and again from the records of the *Index Medicus*, it appears that Hodgkin's disease is comparatively common in the South, and leukæmia very rare.

In regard to the relations of jaundice and pernicious anæmia, I must refer the reader to an interesting paper of F. E. Georgi, entitled "Gallensteine und perniciöse Anæmie" which appears in the *Berliner klinische Wochenschrift* of October 31st and November 7, 1887. The author reports a case of pernicious anæmia, in which, he contends, the first symptoms to present themselves were those of hepatic disturbance. The post-mortem examination revealed the presence of gall-stones. After referring to eight cases of pernicious anæmia with jaundice, he concludes that, in such cases, the retained biliary secretion is the essential cause of the anæmia, by inducing solution of the hæmoglobin. This opinion is criticised in the last of the two numbers just quoted, of the *Wochenschrift*, by C. A. Ewald, who contends that the jaundice is secondary to the anæmia. He maintains that the jaundice in question is not obstructive, but the result of rapid disintegration of red blood-cells. The consequence of this is excessive production of biliary products, inability of the liver and the digestive functions to dispose of this excess, and the reabsorption of the latter from the liver into the circulation. My own case gives very decided support to the latter view. The jaundice in this case was certainly not obstructive. The same may be said of the second of the two cases reported by F. P. Kinnicutt to the Association of American Physicians (*American Journal of the Medical Sciences*, October, 1887).

CHARLESTON, May, 1888.

FRACTURE OF THE STERNUM, WITH DISLOCATION OF THE FRAGMENTS: TREATMENT AND RESULT.

BY B. J. D. IRWIN, M.D.,
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Two cases of fracture of the sternum having been recently reported in the *Boston Medical and Surgical Journal*, vol. cxviii. pp. 368, 369, the writer is induced to place on record, from notes taken at the date of the occurrence, another instance of this rare form of injury.

While on duty at the United States Military Academy, in the summer of 1876, I was called in consultation by Dr. J. B. Monroe, of Highland Falls, near West Point, New York, to see John Turner, a healthy, robust American, aged twenty-six years, who, while seated on top of an omnibus, was dragged by his unruly team through a low doorway of a carriage-house, his body being caught between the lintel and the driver's seat, and crushed violently backward and downward against the roof of the vehicle. As he was hurried forward toward the entrance he endeavored to escape the danger from above by stooping and leaning forward, but his body was caught by the lintel and violently crushed backward, his dorsal spine being pressed against the projecting comb of the seat, formed on the roof of the omnibus. At the same time the compression of the thorax fractured the sternum at the junction of the manubrium with the gladiolus, the lower end of the former being driven inward, while the upper extremity of the latter bone was pushed outward and upward upon the manubrium.

Attempts to return the fragments to their normal position having proved unsuccessful, a broad bandage

had been applied for the purpose of lessening the intense pain caused by thoracic respiration.

Examination of the injured parts disclosed marked projection of the spinal column between the second and sixth dorsal vertebræ, but, although the appearance of the parts indicated fractured bone, careful manipulation failed to disclose crepitus.

Efforts were at once made to replace the fragments of the broken sternum, but, although they could be reduced to position by pressing the overlapping, projecting end of the gladiolus downward, it would slip out and upward on withdrawal of the direct pressure.

To overcome that tendency, a large, hard pad, covered with soft material, was placed between the scapulæ. While the patient inspired deeply and the head and shoulders were extended well back, the displaced fragments were returned and retained in their normal position by a suitable splint applied over the pad and across the spine; the expanded condition of the thorax being maintained by aid of a figure-eight bandage, which bound the shoulders back to the projecting ends of the transverse splint.

To allay pain, which was very severe during the two or three days following the reception of the injury, morphine and potassium bromide were administered from time to time, as occasion required.

The apparatus was worn without change for three weeks. Its use secured perfect reunion of the broken bone and complete restoration of the sternum to its natural condition.

San Francisco, Cal., May, 1888.

MEDICAL PROGRESS.

Myxœdema.—Dr. Ord, as Chairman of the Myxœdema Committee of the Clinical Society of London, at the last meeting of the Society, presented its report, of which the following are the conclusions:

1. That myxœdema is a well-defined disease.

2. That the disease affects women much more frequently than men, and that the subjects are, for the most part, of middle age.

3. That clinical and pathological observations respectively indicate, in a decisive way, that the one condition common to all cases is destructive change of the thyroid gland.

4. That the most common form of destructive change of the thyroid gland consists in the substitution of a delicate fibrous tissue for the proper glandular structure.

5. That interstitial development of fibrous tissue is also observed very frequently in the skin, and with much less frequency in the viscera, the appearances presented by this tissue being suggestive of an irritative or inflammatory process.

6. That pathological observation, while showing cause for the changes in the skin during life, for the falling off of the hair, and the loss of the teeth, and for the increased bulk of the body, as due to the excess of subcutaneous fat, affords no explanation of the affections of speech, movement, sensation, consciousness and intellect, which form a large part of the symptoms of the disease.

7. That chemical examination of the comparatively few available cases fails to show the general existence of an excess of mucin in the tissues adequately corresponding to the amount recorded in the first observations, but that this discrepancy may be, in part, attributed to the fact that tumefaction of the integuments, although generally characteristic of myxœdema, varies considerably throughout the course of the disease, and often disappears shortly before death.

8. That in experiments made upon animals, particularly on monkeys, symptoms resembling in a very close and remarkable way those of myxœdema, have followed complete removal of the thyroid gland, performed under antiseptic precautions, and with, as far as could be ascertained, no injury to the adjacent nerves or to the trachea.

9. That in such experimental cases a large excess of mucin has been found to be present in the skin, fibrous tissues, blood and salivary glands; in particular, the parotid gland, normally containing no mucin, has presented that substance in quantities corresponding to what would be ordinarily found in the submaxillary gland.

10. That the full analysis of the results of the removal of the thyroid gland in man demonstrates in an important proportion of the cases the fact of the subsequent development of symptoms exactly corresponding to those of myxœdema.

11. That in no inconsiderable number of cases the operation has not been followed by such symptoms, the apparent immunity being, in many cases, probably due to the presence and subsequent development of accessory thyroid glands, or accidentally incomplete removal, or to insufficiently long observation of the patients after operation.

12. That, whereas injury to the trachea, atrophy of the trachea, injury of the recurrent laryngeal nerves, injury of the cervical sympathetic and endemic influences have been, by various observers, supposed to be the real causes of experimental or of operative myxœdema (cachexia strumipriva), there is, in the first place, no evidence to show that, of the numerous and various surgical operations performed on the neck and throat, involving various organs and tissues, none, save those in which the thyroid gland has been removed, has been followed by the symptoms under consideration; that in many of the operations on men, and in most, if not all, of the experimental operations made by Professor Horsley on monkeys and other animals, the procedure avoided all injury of surrounding parts, and was perfectly aseptic; that myxœdema has followed removal of the thyroid gland in persons neither living in, nor having lived in, localities the seat of endemic cretinism; that, therefore, the positive evidence on this point outweighs vastly the negative, and that it appears strongly proved that myxœdema is frequently produced by the removal, as well as by the pathological destruction, of the thyroid gland.

13. That whereas, according to clause 2, in myxœdema women are much more numerously affected than men, in the operative form of myxœdema no important difference of the same kind is observed.

14. That a general review of symptoms and pathology leads to the belief that the disease described under the name of myxœdema, as observed in adults, is practically the same disease as that named sporadic cretinism when affecting children; that myxœdema is probably identical with cachexia strumipriva; and that a very close affinity exists between myxœdema and endemic cretinism.

15. That, while these several conditions appear, in the

main, to depend on, or to be associated with, destruction or loss of the function of the thyroid gland, the ultimate cause of such destruction or loss is at present not evident. —*Lancet*, June 2, 1888.

Digitalis as a Diuretic and Laxative.—HUCHARD, in the *Revue Gén. de Clin. et de Thér.* of April 12, 1888, gives the following formula for a laxative powder containing digitalis:

Potass. sulphat.,	
Potass. tartrat.,	
Potass. nitrat.	āā gr. 90.
Fol. digital. (pulv.)	gr. 15.

In twenty powders.
One powder three times daily.

The Use of Gray Oil in Syphilis.—At a late meeting of the Society of Physicians at Vienna, PROF. LANG recommended the use of "gray oil" in syphilis. Recognizing the powerful curative properties of metallic mercury as it exists in blue ointment, the subcutaneous injection suggested itself. The preparation which he has used for four years consists of

Mercury,	
Lanolin	āā 3 parts.
Olive oil	4 parts.

As to the quantity of "gray oil"—as Lang entitles his preparation—to be injected, experience teaches that very small amounts have a powerful influence upon the syphilitic process. Moderately severe forms of syphilis require hardly more than five minims of gray oil a week. As a rule, one and a half to two minims of "gray oil" are injected into two places (buttocks or back) every five to eight days. In two or three weeks, most of the symptoms will have ameliorated or entirely disappeared, and the quantity can then be reduced. As the influence of the injections persists, treatment may be intermitted for ten to fourteen days. Then, the injections are resumed, a quantity equal to that first used being injected at longer intervals, or smaller quantities at like intervals, until twenty-four to thirty-two minims have been injected. Lang advises watching for affections of the mouth and other signs of acute mercurialism.

Knowing the technique, securing a faultless preparation of the remedy and observing antiseptic principles, good results are to be obtained almost without exception. The remedy is well borne; in the four years in which Lang has used "gray oil," only in four or five cases has he been compelled to withdraw the treatment, either because the patient could not bear injections or because an idiosyncrasy to mercury existed.

The inferences from his experience are:

1. That in "gray oil," the mercury is equably distributed, and the dosage can be accurately determined.

2. Convenience of the application.

3. Slight reaction. In none of the many cases thus treated by Lang did suppuration occur at the site of injection.

4. The manifest advantage of the method, however, is that in "gray oil" the mercury is contained in a form similar to that in which it exists in blue ointment.

The treatment with "gray oil" is indicated in all cases in which general treatment with mercury is indicated. There is no method more efficient, or whose results would be more permanent. The best test for a remedy for syphilis is in the success attained in syphilis of the central nervous system, and it is in doubtful cases of syphilis of the brain and spinal cord that Lang obtained very satisfactory results.

An important point is that "gray oil" can be used in cases in which blue ointment, or mercurial plaster cannot be applied. Thus, the author injected into a gummatous cavity in the tibia with a small external opening "gray oil," and the cavity closed. "Gray oil" is also adapted to the local treatment of syphilitic processes in the larynx, in the nose, of the tympanum and of the eye.

In reply to inquiries, Lang stated that immediately after the injection no pain is observed; on the following day, a small infiltrate is apparent, with sensitiveness, which lasts two to five days; after six to eight days, the site of injection is no longer discernible. Comparative experiments with injections of calomel showed that "gray oil" occasioned milder subjective and objective manifestations than calomel. Lang has not investigated how long the mercury remains in the organism, but it has not been demonstrated that remedies which are speedily eliminated are the less active. He has not used "gray oil" in hereditary syphilis. The remedy is not to be advised for children, because they bear subcutaneous injections poorly; but in the case of adults it ought to be useful.—*Wiener medizin. Presse*, May 20, 1888.

Intestinal Occlusion in Pernicious Fever.—DR. A. W. REYES, of Sagua la Grande, Cuba, in an instructive paper on rare forms of pernicious fevers, directs attention to the occasional sudden occurrence of intestinal occlusion due to violent tonic spasm of the intestinal muscular fibres, which is sometimes associated with spasm of voluntary muscles also. In these cases there is great difficulty in arriving at a correct diagnosis, for the temperature is usually only slightly above the normal, the extremely prostrate, sometimes cyanotic, condition of the patient coming on very suddenly, and there being nothing to point to the malarial origin of the affection. Nevertheless, the rapid and powerful effect of quinine, especially if administered hypodermatically, together with the exhibition of some alcoholic stimulant by the mouth, is, he considers, a pretty sure indication of the true nature of these cases.—*Lancet*, May 12, 1888.

Chloroform Water as a Vehicle.—UNNA, in *Monatshefte für Praktische Dermatologie*, No. 9, 1888, writes that he has found chloroform water an excellent vehicle for the hypodermatic administration of Fowler's solution and ergotin, as it prevents the decomposition of the solution. It is also useful in giving morphia where a local anæsthetic and counter-irritant effect is desired, as in neuralgias. It is equally valuable in the internal administration of drugs which decompose rapidly. Atropine and bichloride of mercury may also be given in chloroform water.

Alanin-mercury Hypodermatically in Syphilis.—PROFESSOR DE LUCCA, of Catania, has found that a combination of mercury with amido-propionic acid, or alanin, as it is called, is preferable to all other mercurial preparations for hypodermatic use in syphilitic cases. Alanin-mercury

is thus prepared: One part of alanin is dissolved in twenty parts of water by heating gradually until it boils. While the solution is boiling binoxide of mercury is added little by little until no more will dissolve. The whole is then filtered and evaporated. The alanin-mercury crystallizes out in minute needles of a dull white color. With this substance Professor de Lucca has treated forty cases of recent syphilis. A very small dose is sufficient, the average daily quantity, given hypodermatically, being $\frac{1}{15}$th of a grain dissolved in 15 minims of water. In very few cases were abscesses produced. Alanin-mercury seems to be peculiarly suitable for internal use in infantile syphilis. In these cases from $\frac{1}{30}$th to $\frac{1}{15}$th of a grain was given daily, and in no instance was there any sign that it could not be borne. Professor de Lucca states that the cures produced by alanin-mercury appeared to be of a permanent character.—*Lancet*, April 28, 1888.

Naphthalin in place of Arsenic as an Insecticide.—HAGER calls attention to the dangers attending the use of arsenic and its preparations as an anti-parasite and vermin-killer. He strongly recommends to use naphthalin whenever arsenic would be indicated for the above purposes. He gives among others the following formula:

Naphthalin	40 parts.
Chloroform	80 "
Benzine	100 "

Mix.

Heat carefully to about 20° C., and agitate till the naphthalin is dissolved. American petroleum may be substituted for the benzine. These solutions may be applied as they are to the skin of animals infested with vermin, or they may be applied in a diluted state. The naphthalin may be incorporated with vaseline if an ointment is desired for use, or if an oily liquid is wanted the above solutions may be mixed with liquid vaseline in the proportion of 200 of the former to 1200 of the latter. Hager also speaks highly of the infusion of quassia as an anti-parasitic application.—*Pharmaceutical Record*, May 15, 1888.

Guiacol in Phthisis.—HORNER, in the *Prager med. Wochenschrift*, No. 17, 1888, reports that he has used guiacol in phthisis for four years. The dose has been 7½ grains, in pill form, beginning with three pills and increasing to ten. General improvement followed in the greater number of cases. The tubercle bacilli became less in number.

Changes in the Oxyhemoglobin of the Blood Produced by Typhoid Fever.—HÈNOCQUE and BANDONIN have made daily spectroscopic examinations of the blood in typhoid fever, finding that the lowest point in the course of oxidation was reached about the eighth day. The occurrence of diarrhœa and of pulmonary complications reduced the consumption of oxygen by the blood and other tissues. In general, oxidation in the body was in inverse proportion to the elevation of temperature and severity of symptoms.—*Revue Gén. de Clin. et de Thèr.*, May 3, 1888.

Camphorated Carbolic Acid.—SCHNEIDER, a Swiss physician, recommends camphorated carbolic acid as an "elegant, reliable, and very convenient antiseptic preparation." As is well known, when one part of crystallized carbolic acid and three parts of powdered camphor are shaken up together in a test-tube, a colorless limpid fluid is produced. This mixture does not possess either the characteristic odor or the rubefacient and caustic properties of carbolic acid, while the antiseptic power of the latter remains intact. When placed on the tongue the compound causes but a very slight burning sensation. It has no effect on polished steel.—*British Medical Journal*, May 12, 1888.

An Application for Hysteria of the Larynx.—The *Journal de Médecine de Paris* of May 13, 1888, gives the following formula:

Cocain. hydrochlor. . . .	gr. $\frac{5}{10}$ to 1½.
Aquæ destill.	ʒ 11¼.
Potass. chlorat.	gr. ¾.
Aq. amygdal. amar. . . .	♏ 1.

For local application in laryngeal hysteria.

Atropine in Pilocarpine Poisoning.—DR. WICHERKIEWICZ records in a Polish medical journal a case of poisoning by pilocarpine. Eight minims of a two per cent. solution of pilocarpine had been administered hypodermatically in the temporal region for an ophthalmic affection. This was followed by very severe symptoms of poisoning and collapse. A subcutaneous injection of morphia and the inhalation of nitrite of amyl proving useless, two drops of a one per cent. atropine solution were administered hypodermatically. This had more effect, and the patient recovered.—*Lancet*, April 28, 1888.

The Germs Contained in Vaccine Virus.—PFEIFFER is quoted by the *Centralblatt für Bakteriologie*, No. 19, 1888, in his report of examinations of vaccine lymph to determine the germs contained in it. He found that an absolutely pure lymph is only rarely obtained; the germs most frequently found are spores, rarely in lymph from children, constantly in vaccine lymph. Sarcinæ are also found in both human and vaccine lymph, they are of no practical importance. Bacteria and bacilli are found exceptionally in human lymph, more frequently in vaccine matter. Micrococci are found, the most constant being *staphylococcus cereus albus* and an orange-colored micrococcus identical with the *pyogenes aureus*. Pathogenic micrococci occur frequently, most often the *staphylococcus pyogenes aureus*, *albus* and *citreus*; *streptococci*, those of erysipelas and the *pyogenes* are not found in animal lymph. The bacillus of syphilis does not flourish in bovine lymph and hence syphilitic contagion cannot be obtained from this source. The bacilli of tuberculosis may, however, be inoculated in vaccine lymph.

Imitation Kefir.—A very good and agreeable imitation of the Tartar beverage known as "kefir," which is, like koumiss, used extensively in phthisis and other wasting diseases, may be made by the following simple method described by Dr. Levy in a German chemical journal: Freshly prepared sour milk is briskly shaken up and then placed in a soda-water bottle, together with two per cent. of syrup. The mixture is well corked and kept in a warm place for three or four days. At the end of that time a most agreeable effervescing beverage is obtained

by uncorking the botttle. It contains some two per cent. of alcohol. If required for use more speedily, a few drops of lemon juice should be added to the syrup.—*Lancet*, April 28, 1888.

A Convenient Formula for the Treatment of Tapeworm.—Oil of male fern may be conveniently administered in the following combination:

Ethereal oil of male fern . . .	♏ 45.
Tinct. vanillæ	♏ 45.
Syrup rubi.	ʒ 6¼.
Gum. acac. pulv.	gr. 30.
Aquæ destill.	ʒ 6¼.

To be taken at one dose, in an equal quantity of milk. Castor oil should be taken two hours afterward.—*L'Union Médicale*, May 10, 1888.

The Histology of Peripheral Neuritis.—A new contribution to the histology of peripheral neuritis has been made by Prof. Eichorst, of Zurich (*Virchow's Archiv*, cxii. Hft. 2). The case he describes is that of an habitual drunkard, who died from alcoholic paralysis after six weeks' illness. The symptoms began with incoördination and then paralysis of the legs, followed by paralysis of the extensors of the wrist, with rapid wasting of the paralyzed muscles, tenderness of the muscles, some cutaneous anæsthesia, abolition of reflexes, and ultimately vesical and rectal paralysis. At the post-mortem examination, no gross lesions could be seen in the nerve centres. The brain was not examined microscopically, but the cord showed some asymmetry in the anterior cornua, and some recent hemorrhages in the gray matter in the dorsal region, with thickening of the bloodvessels—changes which did not suffice to explain the general paralysis. The spinal nerve roots were found to be normal. The tibial and radial nerves, on the other hand, were found to be profoundly diseased, osmic acid preparations showing very extensive degeneration and atrophy, with absence of the axis-cylinders in a large proportion of the nerve fibres. Tracing the nerves to their peripheral terminations in the muscles, Professor Eichorst found the lesions to be more advanced and complete there than in the nerve trunks. Indeed, within a muscle there was not a single normal nerve fibre. Nor were the lesions of these intra-muscular nerves limited to degeneration, as in the nerve trunks; but each degenerated fibre was surrounded by numerous laminæ of connective tissue produced from the endoneurium and perineurium. It would seem as if the existence of the degenerate nerve substance had excited inflammatory change around it. Another remarkable fact was that the muscular fibres did not exhibit the trophic changes usually met with in neuritis, although in the vicinity of the diseased nerve-endings the muscular fibres were atrophied apparently secondary to the perineural lesion. Professor Eichorst therefore proposes to term the condition "neuritis fascians," as denoting what he considers to be the essential feature of the change, viz., the inflammation of the nerve sheath, and the extension therefrom to the interstitial tissue of the muscles. He points out that similar changes in muscles have been described by Fränkel in phthisis, and by Eisenlohr in infantile paralysis; the former raising the question whether the ensheathing bands of connective tissue arose from the bloodvessels or the neurilemma. Eichorst does not infer that neuritis fascians is special to alcoholic paralysis, but that it is an important feature of it. Certainly the clinical phenomena of "peripheral neuritis" harmonize with the occurrence of lesions within the muscles themselves, and we may direct the attention of pathologists to the more precise determination of such lesions, which in all probability precede the degeneration of fibres observed in the nerve trunks. The latter change has been amply studied, but the former, and indeed the essential change, has not as yet been much dealt with.—*Lancet*, May 19, 1888.

Antipyrin as a Hæmostatic.—In view of the statements of Henocque and Huchard as to the hæmostatic properties of antipyrin, Dr. Alexëi G. Glinsky, of Kharkov, tried (*Transactions of the Kharkov Medical Society*, Part 1., 1887, p. 23) the drug (in the shape of cotton-wool plugs soaked in a five or ten per cent. solution, or powdered with the antipyrin) in a series of cases of bleeding, such as epistaxis, hemorrhage from surgical or accidental wounds, etc. On the whole, his results were unsatisfactory. In some cases of lacerated wounds of the fingers (inflicted by nail, etc.) hemorrhage was arrested, but it was not certain that this effect was not rather due to pressure than to the antipyrin. Dr. Glinsky tried it on a wound on his own finger, but was obliged to have recourse to perchloride of iron. In three cases of severe epistaxis the bleeding came on again in five or ten minutes after withdrawing the antipyrin plugs, and ultimately could be stopped only by plugging the posterior nares. Antipyrin had no effect in checking hemorrhage after excision of acute condylomata, labial papillomata, etc. On the other hand, Dr. Glinsky was much pleased with antipyrin as a dry dressing in indolent ulcers of the leg, fully confirming Dr. Boss's observations (*Berliner klin. Wochenschrift*, No. 33, 1886) on this point. The healing action of the drug in these cases is so rapid that he strongly recommends the use of antipyrin in powder when other means fail. He also obtained good results with antipyrin in acute articular rheumatism, in which it is said to act as effectively as salicylate of soda and more rapidly. It also proved useful in migraine and neuralgia of the fifth nerve. Unpleasant secondary effects (rash, sickness, collapse) occurred in his experience very rarely.—*British Medical Journal*, May 19, 1888.

A Simple Apparatus for Sterilizing Instruments.—De Backer describes, in the *Journal de Médecine* of May 6, 1888, a simple apparatus, consisting of a rectangular water-bath hermetically sealed containing a pound of paraffine, ordinarily melting at 119° F., and which can be heated to 572° F. without volatilizing. In the water-bath is placed a flask containing the articles to be sterilized. Heat is furnished by an alcohol lamp.

Skin Grafting with Cock's Comb.—Senor F. Altramirano mentions in a Mexican journal, *El Observador Médico*, a case in which he made some experiments in skin grafting on an obstinate ulcer left by a large carbuncle. More ordinary means having failed to cause it to heal, he applied three skin grafts taken from the patient himself. Of these only one took, and the man expressed so much repugnance to the proceedings that another source had to be found for subsequent grafts. A

cock was selected, and fragments cut from his gills; these were split, divided into ten pieces, and the raw surfaces applied to a freshened portion of the ulcer. A carbolized dressing was then bandaged on, the whole being constantly moistened. On the third day, on the dressing being removed, all the ten fragments were found organically adherent. A number of new grafts were then applied, cut from the comb, the gills, and the skin of the back of a chicken. None of these was successful. The cock's gills were again resorted to, and four more fragments successfully grafted. A fresh set of grafts were prepared from this source; but all the cellular tissue was cut or scraped away, in some cases little but the epidermis being left, in others the edges being bevelled, so that the epidermis was in direct contact with the new surface of the ulcer. This set of grafts proved very unsuccessful, so that Dr. Altramirano was led to the conclusion that no advantage is gained by applying the epidermic layer immediately in contact with the surface of the ulcer.—*Lancet*, May 19, 1888.

The Treatment of Gall-stones.—Rosenberg, at a recent meeting of the Berlin Medical Society, stated that upon an American suggestion he had treated with large quantities of olive oil a patient, who, for five years had suffered with attacks of nephritic colic, and had in vain used the most various remedies. The patient took on several evenings, without marked discomfort, from 3 to 5¾ ounces of olive oil, followed by some Cognac, and after the first dose passed 3 calculi, after the second, 243. In all, 26⅓ ounces of olive oil were taken, in five doses, and 629 calculi counted in the stools; subsequently to which the gall-bladder, which had previously extended markedly beyond the margin of the liver, could be no longer palpated. According to the views of American physicians, the usefulness of the olive oil depends upon its entrance into the gall-bladder and softening the calculi.—*Wien. medizin. Presse*, May 20, 1888.

The Influence of Antiseptics on the Kidneys.—At the last meeting of the Berliner Medicinische Gesellschaft, Dr. Emil Senger read a paper on the influence of antiseptic remedies on the organs of the body, with special reference to operations on the kidney. It is well known that after nephrectomy, or even nephrotomy, many patients die with symptoms of uræmia or anuria, even when it had been ascertained beforehand by careful examination that the other kidney was quite healthy and capable of secreting the necessary amount of urea. Dr. James Israël, chief surgeon of the Berlin Jewish Hospital, has propounded a very complicated theory as to certain nervous sympathies between the two kidneys, whereby an operation on one may give rise to degeneration of the other. Senger has now proved by experiments on rabbits and dogs that our antiseptic remedies are the cause of these complications. He injected into the animals, when in perfect health, one-tenth or twelfth part of the quantity of corrosive sublimate, carbolic acid, etc., which is sufficient to kill them. He then extirpated one kidney, and examined it microscopically, with the result that in all cases he found glomerulo-nephritis. There was exudation between the glomerulus and the capsule, and the epithelium of the tubuli contorti was almost entirely destroyed. He found also fatty degeneration of the liver, the spleen, the heart muscle, etc. The various antiseptic agents were found to be injurious in different degrees, corrosive sublimate being the most dangerous, then the others in the following order: iodoform, carbolic acid, salicylic acid, boric acid. Senger therefore recommends surgeons to avoid antiseptics in operations on the thorax and abdomen, and urges them either to employ sterilized water after the manner of Mr. Lawson Tait, or a solution of salt. By bacteriological and pathological researches he proved, first, that this kills the streptococcus pyogenes aureus in twenty-eight minutes, and that the effect is independent of the degree of concentration, for a five per cent. solution is just as effectual as a twenty per cent. Secondly, he claims to have shown that chlorate of sodium does not in any way injure the organs, and that no dose is strong enough to kill any animal.—*British Medical Journal*, May 19, 1888.

A Case of Ectocardia Relieved by Operation.—Lannelongue recently reported to the Academy of Sciences of Paris, the case of a female infant, six days old, brought to his care at the hospital Trousseau, with congenital absence of the anterior wall of the thorax, resulting in an ulcerated aperture as large as a ten cent piece. The day following admission to the hospital, a yellowish membrane which had partially closed the aperture, was removed by ulceration; the anterior surface of the ventricles was visible, and the pericardium was seen to be absent. Progressive ulceration of the borders of the opening, with retraction of the tissues, was gradually forcing the ventricle and apex of the heart forward and without the thorax. A plastic operation was made by loosening flaps on each side of the aperture, and uniting them by sutures, leaving their bases attached for blood supply. No blood was lost by the operation, and cicatrization resulted in less than three weeks. Two months and a half after operation the child was in comfortable health, and it was probable that as the heart increased in size, it would take its normal position within the thoracic walls.—*Gazette Hebdomadaire*, May 11, 1888.

Creasote Hypodermatically in Phthisis.—In a recent work on the treatment of phthisis by Hèrard, Cornil and Hanat, the following formula is given:

Peptone, dried	ʒ 2½.
Pure creasote, from beech wood	♏ 45.
Glycerin neutral	ʒ 17½.
Alcohol	℥ 2½.
Distilled water	ʒ 5.
Hydrochlorate of morphia	gr. 1½.

Dose.—Fifteen minims, repeated several times (as many as four or five times) daily, deeply injected.

Tar Water in Hemorrhage.—Dr. Corneille de Saint Marc finds that distilled tar water has a hæmostatic effect very similar to that of hamamelis. When prepared with the tar of pine wood it has valuable tonic astringent properties. It may be administered in quantities of from 10 to 15 drachms, during the twenty-four hours, in congestive pulmonary hemorrhage, and in hemorrhage of the uterus and kidney. It arrests the hemorrhage of the first two stages of phthisis with remarkable promptitude.—*Lancet*, May 12, 1888.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, JUNE 23, 1888.

THE CASE OF THE LATE EMPEROR OF GERMANY.

SINCE our remarks, in our issue of December 10, 1887, the telegraphic press reports of the medical aspects of this historical case have been so unsatisfactory, in a scientific point of view, that we have purposely refrained from further comment. The lack of information as to the laryngoscopic features of the disease since the performance of the tracheotomy has prevented any accurate interpretation of the meagre and conflicting press dispatches as to the progress of the malady. Now that the case has terminated, and the post-mortem examination has shown the disease to have been carcinoma, some very interesting problems are near their solution.

In our last remarks referred to, the observation was made that "if the disease in the larynx of the Crown Prince of Prussia be carcinoma, the clinical course has been different from what is usual in that disease." It would be injustice to the distinguished gentlemen who have had professional charge of this case to enter into any criticism of their opinions, or of their reports, until the entire clinical history shall have been written by them. In view of a statement that the physicians in attendance upon the Emperor, and notably Sir Morell Mackenzie, denied that the disease was cancer, because of certain clauses in the Prussian Constitution debarring princes afflicted with incurable maladies from accession to the throne, we have only to refer to Sir Morell Mackenzie's candor in his official report made at the request of his patient, and published in *The British Medical Journal* of November 19, 1887; in concluding which he says that "although the nature of the growth which has lately appeared has not been determined by microscopic examination, it presents every appearance of cancer." Surely nothing could be more explicit. If he really became more guarded in his later expressions, it was certainly for good reasons that he felt himself precluded from expressing his views more frankly; and, in justification of such a course for State reasons, he had doubtless the highest advice and authority.

Two important questions of scientific interest present themselves. The one is: Was the disease malignant from the outset? The other is: Supposing that the disease was malignant at the period at which Mackenzie's advice was sought, thirteen months before death, would it have been better practice to excise the larynx?

The fragments of growth removed intralaryngeally from time to time by Sir Morell Mackenzie revealed no malignant features under the microscopic scrutiny of Virchow—the acknowledged master of pathology. In commenting upon his official reports as to the benign character of these fragments, and while distinctly mentioning that that character was no accurate criterion as to the nature of diseased structures still *in situ*, Prof. Virchow made the statement (*Berliner klin. Woch.*, December 21, 1887) that in an examination, expressly instituted for the purpose, of such specimens of cancer of the larynx as he had been able to gather from several collections, he had failed to find a single instance of independent warty formation in association with cancer. This stamps the case under consideration as unique in that respect.

It is not at all probable that any topical interference with the disease, whether electric cauterization practised by Gerhardt, or the subsequent evulsions of morbid growths by Mackenzie, had any influence whatever in transforming a presumptively benign neoplasm into a malign one. Occasional instances of such transformation are on record, but the correctness of such views is a matter of great doubt. Hence the strong probability that the disease was malignant from the outset.

Whether laryngectomy would have removed the disease so thoroughly as to prevent recurrence of carcinoma, and thus have prolonged life for a considerable period, is highly doubtful in the light of the post-mortem investigation. The press report

of this examination is of no scientific value, but it is sufficient to show that the disease was very extensive. Official reports must be awaited to learn the character of the changes which had taken place, and the extent to which the perilaryngeal and peritracheal structures had become involved; but the press report is sufficient to indicate that laryngectomy would have failed to prolong life for as long a period as has followed the palliative and symptomatic treatment which was adopted. Unfortunately, tracheotomy prolonged life but for a very few months; while ordinarily it prolongs life from several months to many. This result is a further indication that laryngectomy would have failed in this instance to be of material benefit.

One comment that suggests itself is whether the amount of official work and worry which seems to have been crowded upon the late Emperor may not have had a good deal to do in so sapping his recuperative powers as to prevent him from reaping that prolongation of life which might have reasonably been expected in a man of his physical vigor at the time of the performance of the tracheotomy. He seems to have been engrossed in his official duties to the very last moment of tolerance, almost to the very day of death.

On the whole, we must come to the conclusion that the case of the Emperor has been handled with consummate ability, and that every untoward feature has been promptly met by Sir Morell Mackenzie in the most judicious manner, and that professional skill did all that human power could do to prolong to the utmost limit the lamented Emperor Frederick's waning life. The pluck and endurance of the patient, and his unflinching confidence in his chief medical attendant, have been such as to command the admiration of the whole world.

ABDOMINAL TUMORS IN THE NEGRO RACE.

It is well known to those who have had to deal with the negro race as it exists in our Southern States, that there is a difference in the susceptibility of negroes to the development of tumors from that of the whites; and this is especially true in regard to neoplasms of the female generative apparatus. Myomatous tumors of the uterus are exceedingly common in colored women; so much so, that it is rather uncommon to find a womb in a middle-aged negro cadaver, in which myomata have not developed. On the contrary, cystic tumors of the uterus or ovaries are very uncommon in the negro; but this infrequency must not blind us to the fact that such growths do occur, and probably more frequently than is supposed. The infrequency of cystic growths in this race has hitherto been considered a sufficiently diagnostic feature to exclude these tumors in a doubtful case, but we can no longer rely upon the statement of authorities that such growths are "almost unknown."

The above remarks are suggested by the fact that within the past few days we have seen an undoubted case of large multilocular ovarian cystoma in a negro woman, the character of the tumor having been verified by its removal by laparotomy.

In the *Maryland Medical Journal* of June 2, 1888, Dr. William Pawson Chunn, of Baltimore, has a suggestive article upon "Abdominal Tumors in the Negro Race," in which he shows conclusively by his own experience and that of Dr. Hunter McGuire and others, that cystomatous disease of the uterus and ovaries is far from being unknown. Renewed attention is called to the fact that cystomata do occur, and that we need not hesitate to make the diagnosis of ovarian tumor, if the symptoms correspond with those of that disease.

Dr. David W. Cheever has been elected President of the Massachusetts Medical Society for the ensuing year.

At the annual meeting of the New Jersey State Medical Society, held last week, Dr. H. Genet Taylor, of Camden, was elected President for the ensuing year. The next meeting will be held at Spring Lake, in June, 1889.

According to the *Maryland Medical Journal* of June 16, 1888, thirty-four graduates of the College of Physicians and Surgeons of Baltimore have appeared before the Virginia Medical Examining Board since January 1, 1885, and of these ten failed to pass the examination.

The University of Bologna, on the occasion of the eight hundredth anniversary of its foundation, conferred its honorary degree upon several representatives of literature, science and art, and included in the list was Dr. S. Weir Mitchell, of Philadelphia, who represented the National Academy of Science on the occasion.

The valuable addition to the structures at Princeton College of a new biological laboratory is an

accomplished fact. The building has been completed and is now being fitted out and made ready for occupancy at the coming fall session. The formal presentation of the property to the board of trustees will take place during the Commencement week. The donors of this important contribution to the scientific instruction of the college are the alumni of the class of 1877, and by their name the building will be known hereafter. Of the members of that class, three, at least, Professors Libbey, Scott and Osborn, have been identified with the upgrowth of the sciences on conservative Jersey soil.

PROFESSOR WILLIAM H. WELCH, M.D., of Johns Hopkins University, will deliver before the Yale Medical Society, New Haven, an "Address in Medicine," on June 26th.

The Canada Medical and Surgical Journal announces that on the first of July it will assume the name of *The Montreal Medical Journal*, will increase the size of its monthly issue by sixteen pages, and reduce its subscription price to two dollars. The *Canada Journal* has always been among the most welcome of our exchanges, and in its new departure we trust that it will receive the large measure of success which its enterprise deserves.

DR. A. C. HENDERSON, of Brooklyn, recently lost a son by a strange and sudden form of death. The lad, aged about twelve years, was assisting in the removal of a large iron retort containing strong commercial ammonia, such as is used in the artificial production of ice. The wagon, upon which the retort was transported, had been jolted much and incautiously and the receptacle was burst, the contained liquid being thrown over the face and body of the lad. He was burned most severely and suffered terribly, death ensuing in about twelve hours. It is altogether probable that if a greater degree of caution had been exercised in the transportation of the dangerous liquid this promising young life would not have been lost.

AN intercolonial commission on the rabbit pest of Australia has recently been appointed, composed largely of medical men: Dr. H. N. MacLaurin, President of the Board of Health of New South Wales, for that colony, with Dr. C. Wilkinson; Professor Allen for Victoria; Drs. Stilling and Paterson for South Australia; Dr. J. Bancroft for Queensland. A representative of New Zealand will be admitted to the commission. Dr. Camac Wilkinson, a member, is the author of a proposition to try Pasteur's plan for the destruction of the pest by inoculation, upon an isolated, uninhabited island which shall be stocked with rabbits and every form of useful animal found in the colonies, and test the method in a precise and thorough manner before adopting it on a wider scale.

A MONUMENT to the memory of Cohnheim was unveiled at Leipzig, with appropriate ceremonies, on the 3d of June.

AT the Second Congress of the German Society for Gynecology, held at Halle on the 24th of May, it was determined, in view of the meeting of the International Medical Congress in 1890 at Berlin, that the Third Gynecological Congress meet next year at Freiburg.

PROF. R. V. JAKSCH has been elected Chief Physician to the Anna Children's Hospital at Gratz.

THE Managers of the Pennsylvania Hospital last Saturday afternoon, formally opened a new villa for the treatment of the insane, which has just been erected, under the supervision of Dr. Chapin, on the grounds of the institution in West Philadelphia. The cottage is of an attractive style of architecture, and its interior arrangements and furnishing are both home-like and handsome. It will accommodate about sixteen patients. The erection of this building will enable those in charge of the institution to form an intelligent judgment as to the value of the cottage-plan in the treatment of the insane, and the result will probably be seen in the character of the buildings which, when the time comes, will be erected on the extensive, new grounds recently purchased in Delaware County.

ON October 26th, the International Society of the Red Cross will celebrate the twenty-fifth anniversary of its organization.

THE Canadian Medical Association will hold its twenty-first annual meeting in the city of Ottawa, on 13th and 14th of September, under the presidency of Dr. J. E. Graham, of Toronto.

AN International Congress for Dermatology and Syphilography will be held in August, 1889, at Paris. Its sessions will continue one week, and will be presided over by Ricord and Hardy.

SOCIETY PROCEEDINGS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, May 23, 1888.

THE PRESIDENT, J. SOLIS-COHEN, M.D., IN THE CHAIR.

DR. A. JACOBI read a paper on

THE THERAPEUTICS OF DIPHTHERIA.

(See THE MEDICAL NEWS, June 16th, page 654.)

DR. JOSEPH O'DWYER then read a paper on

THE USE OF INTUBATION TUBES.

After an experience with tubes of various sizes in over two hundred cases of croup, besides other forms of stenosis, in children, he is fully convinced that, as at present constructed, the intubation tubes afford ample room for carrying on the respiratory function in the most perfect manner. When the disease is confined to the larynx and upper portion of the trachea, it is not an uncommon experience, after the paroxysm of coughing that immediately succeeds intubation has subsided, to find the little patient breathing so quietly and imperceptibly that it is sometimes difficult to convince the mother, who has returned to the room after an absence of fifteen or twenty minutes, that her child is still living. Such complete freedom of respiration would be impossible were the opening too small. When the struggle for breath has continued long enough to produce extreme exhaustion, together with more or less atelectasis and congestion of the lungs, this perfect relief does not occur. The same is true after the partial asphyxia induced by prolonged or repeated attempts to insert the tube. Such cases sometimes never rally, although air enter the lungs in the freest possible manner. If any dyspnœa whatever remain for any considerable time after intubation, or if the respiration be much above the normal in frequency, it indicates the presence of some complication or extension of the disease below the tube. The fact that several times on removing a tube from the larynx he has found its calibre considerably reduced by firmly adherent secretions, when there had been no dyspnœa to indicate it, is good evidence that there is more room than is actually required for the free entrance and exit of air.

He then referred to the manner in which the machinery concerned in the removal of secretions is modified or injured by a canula in the larynx or trachea. The mechanism of coughing, as he understands it, is simply getting as much air into the lungs as possible, condensing it, and allowing it to escape suddenly, on the same principle as the air-gun. To accomplish this, the glottis is firmly closed, coincidently with spasmodic contraction of the expiratory muscles, until the imprisoned air is sufficiently compressed, not only to give it power to project any offending substance before it, like the ball from an air-gun, but also to increase the friction between it and the lining membrane of the air-passages to such a degree as to scrape off, so to speak, secretions that may be adherent.

Considerable condensation, with great velocity of the expired air, is, therefore, necessary to give the maximum expulsive power. The latter without the former would accomplish nothing, because the same volume of air can be driven through the open or half-open glottis just as rapidly as in the act of coughing, without the least power to remove a particle of mucus even from the larynx, much less from the bronchial tubes. This can be demonstrated by trying to cough while retaining the vocal cords in the expiratory position—the lack of power resulting solely from inability to compress the air to any appreciable extent.

Coughing through a canula is identical with this act when performed with a partially open glottis, and the only means left of subjecting the air to any condensation whatever is the much shorter time occupied in expelling it through the same space by which it more slowly entered.

An excellent and forcible illustration of this argument, and one the mechanism of which is identical with that of coughing, is the familiar act of blowing the nose. There is little or no ability to remove secretion from this organ without first reducing the nostrils to a small fraction of their normal calibre, or by momentarily producing complete occlusion, as in closing the glottis, until the air is sufficiently condensed to force the secretions out with it. Very little power can be developed even by closing one nostril and forcing all the air through the other, if normally patulous. If secretions can be removed more effectually from the air-passages through a canula of the dimensions advocated by the authorities already quoted, for the same reason it should be easier to remove accumulations from the nose without compressing the nostrils.

He claimed, therefore, that while the artificial opening must be large enough for the perfect performance of the respiratory function, the power to expectorate is still further diminished, and in exact proportion to its increase beyond this limit.

DR. WILLIAM PEPPER said that the extreme value of iodoform in local treatment he could confirm. Soluble in ether, miscible with glycerin and with oils, capable of use as powder, it is the best of all local applications, and may be applied to all cases and conditions. He would, however, interpose a mild protest against the too sweeping condemnation of the steam atomizer. Used with that gentleness, so wisely insisted upon, and the confidence of the child obtained, the relief to oppression is soon recognized, so that we can secure intelligent cooperation in its frequent and regular use.

The problem of internal treatment is the most difficult one, a problem which largely and continually occupies our thoughts. He was glad to hear Dr. Jacobi's clear and outspoken adherence to the mercurial treatment, although he limits it to a certain group of cases. His longer experience has but abundantly confirmed his early impressions of its value—preëminently in laryngeal diphtheria, whether primary or descending; and he is constantly impressed with the tolerance of children to the bichloride, and equally to the mild chloride. But he would go further. If in a form conspicuous as a dangerous one, which is usually not primary but associated with rhinitis and faucitis, this treatment proves efficacious, why is it not equally good where the nasal or faucial disease has not extended into the larynx? He has found cases of nasal diphtheria which were a source of great anxiety yield in a most remarkable way, and it has seemed to prevent the local spread as well as septic infection.

He agreed with Dr. Jacobi that it is well to begin treatment with the chloride of iron, and that the association of chlorate of potassium is a matter of comparative indifference, and that large doses should be given at short intervals. But he had not been so fortunate in seeing it usually well borne by the stomach. When gastric or intestinal irritation manifests itself, it is well to stop the iron abruptly and to substitute mercurials. Or, when in the beginning of a case of glandular involvement, the faucial tumefaction, the constitutional symptoms, give evidence of rapid sepsis, we cannot depend upon iron and must give the corrosive or the mild mercurial chloride at once.

DR. CARL SEILER said that in his experience the addition of chlorate of potassium to the chloride of iron has been of great use, although he agreed with Dr. Jacobi that chlorate of potash alone is of little use. From laboratory experiments he attributed this to the disengagement of chlorine gas when the two solutions are mixed. In the same way, at the suggestion of Dr. L. Wolff, he finds Labarraque's solution an efficient disinfectant in the proportion of 1 to 5. He uses this as a spray to the nasal cavities or fauces, and has had excellent results.

DR. E. E. MONTGOMERY said that since August, 1886, he had performed some thirty or forty intubations, having previously done some twenty-eight tracheotomies. Fifty per cent. of the children intubated have recovered. His experience is that this operation largely reduces the necessity for tracheotomy, and he believes that if intubation were done early in every case, tracheotomy would rarely be necessary.

DR. M. PRICE said that in the evolution of steam from lime he had for the last fifteen years depended upon the same method as country people use in the scalding of hogs. Put a few pieces of lime in a bucket with hot water, place a blanket over the bed and let steam pass over the child's head. Soon the child acquires confidence and asks for relief, and will even bend his head down over the bucket trying to get the vapor into his throat. Now, if every half hour a hot stone or brick or piece of metal be added to the water, it will keep up the heat without any stove or fire being needed in the room. It keeps the room clean and the atmosphere sweet; he had not found so much danger of contagion when lime is used.

DR. J. SOLIS-COHEN said in regard to local treatment that where it can be properly applied to the extreme margins of the pseudo-membrane, he had found the topical use of chloride of iron, by firm and gentle pressure with brush, or, preferably, cotton wad, the most serviceable agent he had used. The drug has an astringent and a disinfectant action, and assists the detachment of false membrane, and apparently prevents the extension of the infection. Concerning the value of chloride of iron internally, the importance of large and frequent doses, the advantage of mixture with glycerin to assist its local effect, he can only confirm what has been said. So, too, as to the bichloride of mercury.

Empirical observation has long taught us the preëminent value of the chlorine compounds in general in the treatment of diphtheria; and the mercury chlorides, more particularly calomel, however, have always enjoyed a high reputation in the internal treatment of membranous laryngitis. The topical action of steam is very important. It has always seemed to him that in the natural course of the disease, the membrane is thrown off by an accumulation of fluid beneath it, which softens it and secures its detachment. We aim, then, by furnishing artificial moisture, to imitate the natural process of recovery. And this led him to speak of the value of the vapors from lime in the process of slaking. Using a large wash-tub or wash-boiler, and keeping up a supply of large pieces of lime, we secure an abundant disengagement of the hot vapor of water, carrying up with it particles of lime, which mechanically assist by prying up the edges of the pseudo-membrane, and thus favoring the access of the vapor of water beneath it.

There is another method of local treatment which he had employed with great satisfaction, more especially in former years, when he saw more of the disease—that is, inhalation of carbolic acid in the spray of a steam atomizer, in very large doses. Twenty to twenty-five grains would be added to the ounce of water, and from half an ounce to an ounce sprayed into the throat every hour, or even half hour, until commencing discoloration of the urine gave evidence of saturation, when the remedy was to be stopped until the urine again became clear. Under this method he would advise the attending physician to see the child four or five times a day, always having the urine last voided saved for him, and when the olive discoloration was noticed to intermit the carbolic acid. This seemed to him to disinfect the system, and thereby improve the local condition, and, at the same time, to prevent or diminish the danger of systemic sepsis. He was not aware, before to-night, that such small doses of carbolic acid, as Dr. Jacobi mentioned, could be of service.

His own experience with tracheotomy led him to favor large tubes, the largest that can be introduced without touching the walls of the trachea. He still believes that he has seen life saved by taking out small tubes and substituting larger ones. But facts are stronger than theories, and as the small calibre intubation tube does seem to give air enough, and as enough is all that is wanted, he is ready to profess his satisfaction with its present calibre.

He asked Dr. O'Dwyer to make clear the question as to the impaction of membrane. Some years ago he was called to a case of membranous laryngitis, and had proposed tracheotomy, which had been declined. As he turned to leave the room the mother called piteously, "Oh, Doctor, don't leave my child without trying to do something for it." He said to his assistant, "we will try to save this child," and taking a catheter he cut off the end, and passed the instrument into the larynx. The child instantly became black in the face, and there was nothing for it but, without asking any questions, to plunge his knife into the trachea as the child lay on its mother's lap. He inserted the same catheter through the orifice deep into the trachea, and then he performed artificial respiration; his assistant inflating the child's lungs through the tube with his own breath, and his hands exercising compression of the thorax in respiratory rhythm; and, after a while, he had the satisfaction of leaving the rescued child sleeping peacefully with unobstructed respiration. But this experience cost him some of the most anxious moments of his life, and has left a fear of the danger of crowding down membrane in front of a tube introduced into the larynx, which may, perhaps, make him overanxious.

Dr. Jacobi said that the slaking of lime has the further advantage that it is the only way to utilize lime. A lime-water spray is useless, but in slaking a large amount is carried up into the air and air-passages. The suggestion of the President that carbolic acid should be used in spray until discoloration of the urine is noticed, he did not feel inclined to adopt. Diphtheria is the very disease in which no complications should be allowed to exist, and we must not tempt them. A single case in which we should have to blame ourselves for a possible nephritis would, in his judgment, condemn the treatment. Besides, young infants are sometimes poisoned by very small quantities.

Dr. O'Dwyer said that pushing down of membrane does occur, though rarely. The difference between the liability to the accident in catheterization and intubation, is that the catheter has an open, comparatively broad end, while the intubation tubes are comparatively probe-pointed. One pushes and catches the membrane, the other slides past it. He has crowded membrane down in only two cases out of two hundred sufficiently to produce asphyxia. In those two, on removal of the tube, the cast was coughed out. If we take away the tube because the child is breathing badly, and the trachea is full of membrane, the child, not having the strength to cough it out, chokes from the absence of the tube, not from its previous presence. His attention is now being directed to devising a means to get rid of the membrane, and he hopes to present something practical before long. Blocking with membrane, while the tube is in, may occur. Formerly, when the swell of the tube was not so great, it would be coughed out, but now it is not coughed out, and suffocation may take place. The original tube was better in this regard.

The earlier tubes were made to fit into the ventricles with the idea of permitting the approximation of the ventricular bands, but it did not work. It is true that the epiglottis is merely an accessory, but in an intubation case the ventricular bands being held open we have to depend upon it; and that is the reason, the dependence being a poor one, that solids and semisolids which can go down in mass are better than liquids.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, June 5, 1888.

The President, George W. Jacoby, M.D., in the Chair.

Dr. Frederick Petersen read some

NOTES ON THE PRINCIPLES OF CRANIOMETRY.

After a review of craniometric nomenclature the reader stated that, while separate convolutions exert no specific influence upon the bones of the head, the shape of the skull is modified in correspondence with the gross divisions of the brain beneath it. The left temporal bone was said to be depressed in congenital aphasia. In infantile spastic hemiplegia there was flattening of the side of the skull opposite to the paralyzed part. Cerebral localization has been concerned mainly with motor and sensory functions. Ideational localization had yet to be developed. In his own opinion the temporo-sphenoidal lobes, and perhaps the occipital, contained cortical centres for depressing emotions. Musical ideas had their origin in the temporo-sphenoidal lobes together with the rest of the auditory memories.

Benedikt has reduced craniometry to a science, showing that the skull is built upon crystallographic principles. The measurements taken should be sufficient to reconstruct the skull. Triangulation of the skull should be required in asylums in the case of every patient, and in prisons in the case of every criminal. We are behind European countries in this matter. Even in Italy fourteen measurements are required for asylum records. The reader thought eleven measurements at least should be made: 1, the circumference of the skull; 2, the naso-occipital arc; 3, the naso-bregmatic arc; 4, the bregmatic lambdoid; 5, the binauricular; 6, the antero-posterior diameter, taken from the glabella to the maximal occipital point; 7, the greatest transverse diameter; 9, the two auriculo-bregmatic radii; 10, the facial length; 11, the greatest height of the skull. A calipers, tape-line and a strip of lead two feet long only are required. For more detailed measurements other instruments are required. Benedikt's calipers were recommended.

The pathological and forensic importance of such measurements are shown by the fact that minimal and maximal measurements are more common among the insane and criminal classes than among other people. The bregmatic-lambdoid arc was said to be shortened in epilepsy. The reader referred to one hundred cases of his own observed at the Hudson River State Hospital, at Poughkeepsie, in which asymmetry had been observed.

The measurements do not present any practical difficulties; the eleven measurements can be obtained and a drawing made in the course of fifteen or twenty minutes. In measuring the length of the parietal bone care must be exercised in getting the points correctly, but only a tape measure is needed.

Dr. J. A. Booth presented the report of a case of

PROGRESSIVE MUSCULAR ATROPHY WITH ANÆSTHESIA.

The patient was forty-two years of age, a shoemaker by trade, and still under observation. There was no family history of nervous disorders, no history of alcoholism or syphilis in the case. The patient had been married eighteen years, and had had two children; one, a girl of five years, had never walked. The affection had commenced in October, 1878, with general weakness, debility and weakness in the arms and hands. In January, 1879, the patient's voice had commenced to be husky. Six months later he had developed a feeling of cold and numbness in the left shoulder and side of the neck, with subsequent decrease in size. The atrophy commencing in the deltoid had spread to other muscles of the trunk and upper extremities. At the present time the patient weighed 155 pounds. There was marked sinking of both shoulders. There was weakness of the upper extremities with marked atrophy of the interossei. There were scars and abrasions about the hands and a scar upon the neck. The patient stated that he did not know when these injuries were received, that he had not felt them. There was no ataxia in walking or upon standing. The voice was harsh, the left side of the palate was paretic, the uvula being drawn to the right. The larynx had been examined by Dr. A. H. Smith. The left superior constrictor, the left palato-pharyngeus and the adductors of the left vocal cord were paralyzed. There was slight deviation of the tongue to the right.

There were marked fibrillary contractions in the atrophied muscles. The patellar reflexes were exaggerated. There was sluggishness of the accommodation, but no change in the visual field and no diplopia. Taste, smell and hearing were not impaired. It was apparently a case of progressive muscular atrophy with bulbar symptoms. The reader called attention to the sensory impairment as an unusual complication, and suggested to account for the anæsthesia and analgesia a lesion in the peduncle or pons on the right side.

DR. STARR found the case interesting, but remarked that the anomaly mentioned had been recorded by Ross in his text-book, and by Gowers in his text-book. In cases of this character post-mortem examinations had shown abnormal cavities in the cord, due chiefly to the degeneration of gliomatous tumors. Schultze had described cases; Bäumler also in his article upon syringomyelia. The case reported by Dr. Booth was, in his opinion, a case of this kind. The fact that the senses of touch, pain and temperature were all abolished would support this view. Touch sometimes escapes in syringomyelia, but not always. The three tracts are found in the formatio reticularis of the medulla and pons, and extend through at least one-fourth its extent. A lesion affecting them all would involve also the cranial nerves passing through this part. The symptoms reported could be more satisfactorily explained by a lesion in the cord, and the case as one of syringomyelia.

DR. SACHS had the same impression of the case, the combination of sensory and motor symptoms being a prominent feature in syringomyelia. From the fact that the anæsthesia had not affected the leg, it appeared that the grouping was exactly similar to that in this disease.

DR. PETERSEN asked whether the designation syringomyelia could be proper where cranial nerves were involved.

DR. SACHS replied that the cavity might extend upward into the medulla; that a number of cases of syringomyelia had been reported in which the cavity had involved the medulla. In regard to the question of nomenclature, we were not yet in a position to say whether the cord ended below the medulla or above it.

DR. BOOTH asked whether in these cases there was paralysis of the limbs.

DR. STARR replied that there was paresis proportioned to the atrophy, not paralysis in the sense of hemiplegia or monoplegia.

DR. J. C. SHAW followed with a paper upon

DEGENERATION OF THE PERIPHERAL NERVES IN LOCOMOTOR ATAXIA, WITH MICROSCOPIC SECTIONS.

The patient, forty-seven years of age, had been a typical case of locomotor ataxia. Following an attack of hematuria he had had two epileptic seizures, and had died the following day. On post-mortem examination the hemorrhage was found to have come from the right kidney. Pieces of the sciatic, plantar and popliteal nerves had been removed for examination; part of the specimens being stained with osmic acid, and part with the bichromate of potash solution. Changes were found which the reader considered distinct from the Wallerian degeneration. The changes consisted in granular degeneration, liquefaction and even absorption of the myelin sheath, with persistence of the axis-cylinder, and in some places a collapsed sheath of Schwann.

NEWS ITEMS.

American Association of Obstetricians and Gynecologists.—The following preliminary programme of the Annual Meeting, to be held in Washington, D. C., September 18, 19 and 20, 1888, has been announced:

The President's Annual Address. By William H. Taylor, M.D., of Cincinnati.

Discussion: Extrauterine Pregnancy. 1. Pathology. 2. Diagnosis. 3. Treatment. By Mr. Lawson Tait, Dr. Franklin Townsend, Dr. E. E. Montgomery, Dr. Charles A. L. Reed, Dr. A. Van der Veer.

The Relations of the Abdominal Surgeon to the Obstetrician and Gynecologist. By Albert Van der Veer, M.D., of Albany.

Operation for an Unusual Case of Subserous Uterine Fibroid. By Hampton Eugene Hill, M.D., of Saco, Me.

Drainage in Abdominal and Pelvic Surgery. By Joseph Price, M.D., of Philadelphia.

Double Ovariotomy during Pregnancy; a Successful Case Going on to Full Term. By William Warren Potter, M.D., of Buffalo.

The Indications for Artificial Aid in Labor. By Thomas Opie, M.D., of Baltimore.

The Technique of Vaginal Hysterectomy. By James H. Etheridge, M.D., of Chicago.

The Surgical Treatment of the Perineum. By William H. Wathen, M.D., of Louisville.

Laparotomy in Peritonitis. By E. E. Montgomery, M.D., of Philadelphia.

Tumors of the Abdominal Wall. By Charles A. L. Reed, M.D., of Cincinnati.

Uterine Fibroids; their Diagnosis and Treatment. By Thomas J. Maxwell, M.D., of Keokuk.

Dermoid (Fibroid) Tumors of the Abdominal Walls. By Edward J. Ill, M.D., of Newark.

Ruptured Perineum. By J. Henry Carstens, M.D., of Detroit.

A Contribution to the Study of Pelvic Abscess. By Clinton Cushing, M.D., of San Francisco.

The Female Perineum: its Anatomy, Physiological Function and Methods of Restoration after Injury. This paper will be illustrated with lime-light and screen. By Henry O. Marcy, M.D., of Boston.

Heart Failure in the Puerperium. By Thomas Lothrop, M.D., of Buffalo.

Treatment of Suppurative Peritonitis. By William H. Myers, M.D., of Fort Wayne.

Operative Treatment in Uterine Carcinoma. By George R. Shepard, M.D., of Hartford.

The Reflexes Reflexed; or Some Things that Retard Progress in Gynecic Surgery. By Joseph Eastman, M.D., of Indianapolis.

Some Points in Relation to the Diagnosis of Pregnancy in the Early Months. By James P. Boyd, M.D., of Albany.

Vaginal Tamponnement in the Treatment of Prolapsed Ovaries. By W. F. Manton, M.D., of Detroit.

Mr. Lawson Tait, F.R.C.S.E., of Birmingham, England, will also present a paper on "The Methods of Success in Abdominal Surgery."

A Testimonial to Mr. Bryant.—On May 31st, in the Anatomical Theatre of Guy's Hospital, on the occasion of

his retirement from the surgeonship, a testimonial, from past and present students, in the form of a handsome silver punch-bowl, with an illuminated book, containing photographs of various parts of the hospital and the names of the subscribers, was presented to Mr. Bryant.

Test for Plumbing.—The New York Board of Health has led the way for other municipal authorities by adopting a mandatory test for plumbing. On and after July 1 the work under plans filed after that date must be tested by the plumber in the presence of the inspector, by means of an air pump and pressure-gauge, in the same manner as the gas-pipe system of the building. This is claimed to be the most effective test possible, as the pressure is equal all over the building. The department of public works will issue no permit for water for domestic uses until the certificate of the health department is presented.

A Milk Epidemic.—An important investigation under the direction of Dr. Russell, health officer of Glasgow, Scotland, is in progress. It is no less a matter than the alleged direct infection of a number of people in the West End of Glasgow with scarlet fever, by means of milk from a dairy farm. The cattle on the farm in question were found "slightly ailing" with the very disease which, when transmitted through milk or meat to human beings, brings on scarlet fever. The result was a severe epidemic. No other epidemic, of late years, has offered such a field for investigation, and Dr. Russell's work will be followed with a great deal of interest.

Still Another Test for Sugar.—Fischer detects glucose in the urine by the formation of crystals of phenyl-glucosazine. A little phenyl-hydrazine hydrochlorate is put into a test-tube, together with twice its weight of sodium acetate; water is then added and heat is applied. An equal volume of the urine to be examined is now added, and the mixture is boiled twenty minutes and then cooled, when yellow crystalline needles separate if glucose is present. When the quantity of glucose is minute, it is necessary to have recourse to the microscope to find the characteristic crystals. By the aid of this reagent Van Jaksch has been able to show that sugar is present in the urine after inhalation of chloroform, in cases of asphyxia, after taking large doses of sodium salicylate, etc., where the reaction with Fehling's solution is in the nature of things inconclusive.—*Pharmaceutical Era*, June, 1888.

The Epidemiological Society of London, at its meeting of May 24th, elected Max v. Pettenkofer an honorary member.

A Risk of Travel.—The reported indisposition of the Duke of Edinburgh, from drinking impure water at a foreign station, gives prominence to what is perhaps the most usual and frequent source of danger in foreign and Continental travel. Many of the sanitary authorities who have looked into the question have, from time to time, uttered warnings to Continental travellers as to the dangers of the ordinary drinking water to be found abroad. The pollution of table water at foreign hotels and houses is due to a great variety of causes. The water supply of foreign cities is, as a rule, to which there are only few exceptions, taken from sources lamentably liable to sewage pollution, either in open streams or uncovered reservoirs, or from defective sanitation in the house supply. A large part of the domestic supply of drinking water is, moreover, from surface wells, which are constantly liable to sewage filtration. An examination, made only a few years since, of siphons of sparkling "seltzer" in a great Continental city, disclosed the fact that they were horribly polluted with sewage, and that the effervescing fixed air with which they were charged only served to conceal unutterable contaminations of a most dangerous kind. Sir Henry Thompson and Dr. Herman Weber, who have both given attention to the subject, are very emphatic in their counsel to travellers to avoid ordinary drinking water abroad. The easiest and most agreeable means of avoiding the danger is the habitual use of a pure natural mineral water in lieu of the doubtful drinking water of the hotel or the private house.—*British Medical Journal*, June 2, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 12 TO JUNE 18, 1888.

Waters, William E., *Major and Surgeon.*—Granted leave of absence for twenty-days, to take effect about June 15, 1888.—*S. O. 64, Department of Columbia*, June 8, 1888.

Calvin, DeWitt, *Major and Surgeon.*—Granted leave of absence for one month, with permission to apply for an extension of one month.—*S. O. 39, Department of Dakota*, June 9, 1888.

Birmingham, Henry P., *Captain and Assistant Surgeon.*—Granted leave of absence for one month.—*S. O 117, Division of the Atlantic*, June 11, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING JUNE 16, 1888.

McMurtrie, Daniel, *Surgeon.*—Detached from the Naval Hospital, Yokohama, Japan, and ordered to return home.

Gravatt, C. U., *Surgeon.*—Detached from U. S. S. "Michigan," and ordered to the Hospital at Yokohama.

Edgar, John M., *Passed Assistant Surgeon.*—Ordered to the U. S. S. "Michigan."

Mackie, B. S., *Surgeon.*—Ordered to the U. S. S. "Ossipee."

Parker, J. B., *Surgeon.*—Detached from the U. S. S. "Ossipee," and await orders.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING JUNE 16, 1888.

Wyman, Walter, *Surgeon.*—Detailed as a member of the Board of Examiners, vice Surgeon Fessenden, excused on account of physical disability, June 15, 1888.

Fessenden, C. S. D., *Surgeon.*—Granted leave of absence for thirty days, on account of sickness, June 15, 1888.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

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ORIGINAL LECTURES.

PLEURISY,

With Large Hemorrhagic Effusion.

A Clinical Lecture delivered at the Philadelphia Hospital.

BY FREDERICK P. HENRY, M.D.,
PHYSICIAN TO THE HOSPITAL.

GENTLEMEN: The serous membranes are the tissues of which the study has given us almost all the exact knowledge we possess concerning the process of inflammation. The exudation of plasma, the deposit of fibrin, and, most important of all, the migration of leucocytes, have all been studied in serous membranes, and, therefore, when one of them is inflamed, it might be supposed that we would have an accurate mental picture of the process that is going on, and be able to predict the precise period and mode of its termination. Such, however, is by no means the case. We may know, for example, that the pleura is inflamed; that fibrin is forming on its surface; that serum is exuding, and leucocytes migrating into its cavity, but we cannot foresee at the beginning of the attack whether the fluid products of inflammation will be so small in proportion to the solid that the pleurisy may fairly be called dry or fibrinous, or whether they will be poured out in large amount. With all our intimate knowledge of what may be called the physiology of inflammation, we are obliged to study each case separately, using all the means at our command to determine, first, whether inflammation is, or has been, present, and, secondly, what are the situation, the nature, and the amount of its products. I propose to make such a study of the patient before you; but before doing so, will make some remarks upon the diagnosis of pleurisy, with large effusion, as I believe that thereby your appreciation of the case, which is a most typical one of its kind, will be somewhat enhanced.

The presence of pleurisy, with large effusion, may be suspected, but its diagnosis cannot be made by mere inspection. On baring the chest the dimensions of one lateral half may be seen to be greater than those of the other, and its intercostal spaces distinctly widened. In addition, the respiratory movements of the same side may be diminished or entirely suppressed, and the heart's impulse detected in an abnormal situation, and yet, notwithstanding the concurrence of signs, each one of which is more or less diagnostic, no competent physician would think of trusting solely to them, but would proceed to the next step, which is *palpation*. By this means the chest walls which were seen, may now be felt to be more or less motionless on one side, and by placing a hand on each lateral region of the chest and directing the patient to take a deep breath, the contrast between the diminished or absent movement of the affected and the free, perhaps exaggerated movement of the sound side, becomes very marked. By palpation also, the absence of vocal fremitus on the side of the effusion is ascertained.

Auscultation.—The next step in the examination is auscultation, and although the signs which it furnishes are, for the most part, negative, they are none the less valuable on that account, for what single fact can be more significant than the absence of breath sounds and vocal resonance over a greater portion, perhaps the whole, of the affected side? And here also the contrast with the sound side, on which the breathing may be puerile, and the vocal resonance increased, is very striking. These remarks apply to cases of large effusion. In slighter degrees, in which the layer of fluid between the lung and the chest wall does not, perhaps, exceed two inches, the breathing and voice, although distant, may be distinctly bronchial. This bronchial character of the voice and respiration is due to the compression of the lung, and disappears as the effusion increases, simply because the resistance becomes too great for the sound waves to overcome. In a case of pleurisy in this hospital last month, in which I removed twenty-two ounces of serous fluid by aspiration, I have entered in my notes that the dulness behind extended upward to the middle of the scapula, and that over the same area the breath sounds were inaudible, while the voice was distant and bronchial. In that case, as you perceive, the effusion, although moderate, was sufficient to extinguish the breath sounds, but not those dependent upon the voice. Do not forget that bronchial breathing and bronchophony are signs which are not limited to pneumonia, but are often the accompaniments of a moderate pleural effusion.

The heart sounds may be very faint or inaudible in their normal situation, while they are distinctly heard in some other spot. In right-sided effusion they may be heard most distinctly in the axillary region, and when the effusion is in the left pleural sac they may be loudest at some point to the right of the median line.

Although the impulse of the heart has been already referred to under the head of inspection, it is so intimately associated with the sounds that it is more natural to speak of it here. It may be most distinct to the left of the left nipple, or may actually be pushed over to the right mammary line. The impulse felt when the heart is pushed far to the right, is not caused by the apex of the heart, but by some portion of its right cavities, auricle or ventricle. Again, the heart's impulse may be imperceptible over any portion of the thorax. This may be due to the fact that it impinges against the posterior surface of the sternum, in which case auscultation will reveal the site of the displaced organ. Finally, in left-sided effusion, the pericardium may have become adherent to the lung, and, as the effusion increases, both heart and lung are carried backward together so that neither cardiac sound nor impulse can be detected. I have never seen an instance of this anomaly, but its possibility should be borne in mind.

Percussion.—I am accustomed to depend more upon percussion than on any other single means employed in the diagnosis of pleurisy with large effusion, I might say than on all other means combined. The information thereby obtained derives its value not only from the alterations of the normal sounds in various regions of the chest, but also from the sense of resistance felt by the percussed finger. This affords a striking instance of the great superiority of the fingers over any instrument employed to facilitate percussion. The sense of touch is, in my opinion, as much concerned in obtaining the best results from percussion as that of hearing.

The dulness, or rather flatness, on percussion, may not only occupy the whole area of the thorax in which, in health, the pulmonary resonance is obtained, but may even extend beyond it, and this fact constitutes one of the most important diagnostic signs of pleurisy with large effusion. On the right side the weight of the fluid may press the liver downward until its lower border is felt on a level with the umbilicus. On the left side anteriorly, there normally exists an area of tympanic resonance caused by the splenic end of the stomach. It has the shape of a half moon with its convexity upward, and is known as the semilunar space of Traube, who first called attention to its diagnostic importance. In left-sided pleurisy with large effusion, the semilunar space of Traube is abolished, and its place occupied by dulness.

A remarkable exception to the universal dulness, in large pleural effusion, is found at the apex anteriorly, where there is often a well-marked, low-pitched, tympanitic resonance, or, sometimes, even a cracked-pot sound. The explanation of this phenomenon has called forth a great deal of discussion which could not be entered upon without a preliminary consideration of the theories in vogue concerning the production of the normal sounds. This is altogether foreign to our present purpose, and, therefore, I merely repeat that, in large pleural effusion, there may be dulness not only over the entire area normally occupied by lung, but even extending beyond it, with, at the same time, tympanitic resonance in the infra-clavicular region. In the highest degrees of effusion, even this tympany is absent and the dulness becomes universal.

Let us now endeavor to apply these general facts to the particular case before us.

On inspection, it cannot be said that either half of the chest is larger than the other, but, on looking for the cardiac impulse, it is not seen in its normal position. This is not an unusual circumstance, even in health, when the subject is in the recumbent position; but, on continuing the search, the heart's impulse is plainly seen in the second intercostal space on the right side, barely within the right mammary line. This extraordinary dislocation of the impulse may be perceived by those seated nearest the patient.

On placing the hands on each side of the chest and directing the patient to take a deep breath, the respiratory movement of the right side is found to be much greater than that of the left. On auscultation, the breath sounds are inaudible both in front and behind, but the voice, very faint and distant, may be heard over the back of the chest. On the right side, both the respiratory murmur and the vocal resonance are exaggerated. The heart sounds are faintly heard in their normal situation, but loudest in the second right intercostal space, where the impulse is most distinct. On percussion, the dulness is found to be universal, including the semilunar space of Traube and the infra-clavicular region. A few days ago, I obtained a well-marked cracked-pot sound in the left infra-clavicular region, and its disappearance in the interval shows that the effusion has been steadily increasing. The case is undoubtedly one of large pleural effusion of the left side.

The want of distention of the left lateral half of the thorax may be correlated with the remarkable displacement of the heart. On measuring the two sides of the chest I found that the left side was only half an inch larger than the right, and this is due to the unyielding character of the thorax, which, in its turn, is dependent upon the man's age, which is sixty-two. The pressure of the fluid has told with greatest effect upon the mediastinum, which, in yielding, has carried the heart with it.

The case is such a typical one, every symptom being present in such bold relief, that it cannot be mistaken for any other condition. Aneurism is out of the question, there being neither thrill, murmur, pain, dyspnœa, nor dysphagia. The dulness due to a tumor would neither be so extensive nor so regular in outline, and vocal resonance and fremitus would probably be obtained at one or more parts of the chest-wall. The most common error with reference to accumulations of fluid within the thorax is that of mistaking a large pericardial for a pleural effusion. Dr. Fagge states that all the cases of large pericardial effusion admitted to Guy's Hospital were mistaken for pleurisy. The distinct character of the impulse of the heart and its displacement forbid the possibility of such mistake in this case.

I have said that there are cases of large pleural effusion, in which, on account of adhesions between pericardium and lung, neither cardiac sound nor impulse can be detected. I have made this statement on the authority of others, without having seen satisfactory evidence of its truth. Should I meet with a case of fluid accumulation on the left side of the chest without being able to detect the heart-sounds or impulse on either side, I would regard the effusion as pericardial.

Treatment.—Valuable time will be lost by perseverance in an exclusively medical treatment of this case, and, therefore, I propose to remove some of this fluid with the aspirator. I have already withdrawn, by means of a hypodermatic syringe, the fluid in this test-tube, which has, as you see, the appearance of pure blood. That it is not pure blood is proved, first, by the fact, that although it has been in this tube since yesterday afternoon, it has not coagulated; and, secondly, by examination with the instrument I show you, which is Gowers's hæmoglobinometer. By means of this instrument I had no difficulty in determining that the amount of blood in this effusion was less than one per cent. In other words, if I remove fifty ounces from this pleural cavity the amount of blood which it will contain will be less than half an ounce. This fact is one of decided importance, for often, after tapping, the fluid reaccumulates with great rapidity. In the case before us we may now feel confident that if the fluid removed be replaced by a new effusion of the same composition, the amount of blood thereby withdrawn from the vessels will be too small to injure materially the already feeble patient.

As to the point of puncture in aspirating a pleural effusion I prefer the seventh intercostal space, just ante-

rior to the border of the latissimus dorsi. On account of this patient's age, and the unyielding character of his thorax, I will remove but a portion of the effusion, stopping the aspirator on the first symptoms of cough or epigastric distress. The largest amount of fluid that I have removed at one operation was 127 ounces. The effusion was serous, and had occupied the right pleural cavity for six months. The patient was a young and previously strong Irishman, an inmate of the Episcopal Hospital, where the operation was performed on May 7, 1886. Notwithstanding the great accumulation of fluid, the patient did not complain of dyspnœa while in bed, and *could lie on either side*. In that case the improvement was rapid aud continuous. In a week the man was out of bed, and, a few days later, left the hospital, believing himself to be well. I could have removed still more fluid, but desisted when the patient began to cough slightly, and complained of a painful sensation in the epigastrium.

A few words with reference to the character of the effusion in this case. It has been stated that a hemorrhagic effusion into the pleura is invariably indicative of the fact that the inflammation giving rise to it is of a tubercular nature. To those who hold that all pleurisies are tubercular, such a statement is, of course, a truism. Taken in the sense that a tubercular pleurisy necessarily gives rise to a hemorrhagic effusion, it is absolutely incorrect. That the inflammation of the pleura giving rise to large effusion, whether serous, purulent, or hemorrhagic, is usually tubercular, is a generally accepted fact. Kelsch and Vaillard (*Arch. de Phys. Norm. et Path.*, 1886) give reports of the minute examinations of sixteen cases of pleurisy, in all of which tubercles were found, and they state that in all the autopsies of pleurisy that they had made for three years, tubercle was present. Exception may be taken to their report on the ground that, although the anatomical appearances were those of tubercle, nothing is said with reference to the presence or absence of the bacillus.

As Fraentzel remarks: When we consider the delicate structure of the newly formed vessels, and their great abundance, in the pleuritic pseudo-membrane, as well as the frequency with which hemorrhagic spots are seen on its surface, the wonder is that every effusion is not hemorrhagic.

The presence of numerous maculæ on the surface of this man's body, one of which, in the groin, is as large as a silver dollar, leads me to the belief that purpura is the cause of the bloody effusion in this case. Hemorrhagic pleural effusion, in general, is dependent rather upon a constitutional condition, such as scorbutus or purpura, than on any local peculiarity of the inflammatory process.

NOTE.—When twenty-eight ounces of hemorrhagic fluid had been removed, the patient coughed slightly, and became somewhat uneasy and restless. The aspiration was, therefore, stopped.

It is ten day since the operation was performed, and, in the interval, there has been a steady improvement in both symptoms and signs. The heart has receded somewhat toward its normal position, and there is normal resonance at the left apex where, also, puerile vesicular murmur may be heard. There has been also a marked improvement in the appetite and digestion of the patient.

ORIGINAL ARTICLES.

SOME POINTS IN TREATMENT AT THE MEMORIAL HOSPITAL, ORANGE, N. J.

BY JOHN H. BRADSHAW, M.D.,
HOUSE PHYSICIAN.

THE following notes are merely brief records of some of the more recent cases and methods of treatment at this institution.

Bisulphite of soda solution is mainly depended upon for the treatment of erysipelas. The usual fifty per cent. solution of the shops is diluted with water three times, and is used locally under oiled silk, continuously until all redness of the skin has disappeared.

Cellulitis of the hand has met with a steady check by the continuous, cold, permanganate of potash drip, half a grain to a pint of water.

Fistula in ano has here (after the method inaugurated by Dr. Pierson, in 1876) received a most radical, sharp spoon treatment. All sinuses are laid open, and their diseased walls are dissected or scraped away. The wound is then united, under strict antisepsis, with sutures. Several extensive multiple fistulæ are recorded as healed by first intention.

Heaton's operation for hernia has not been successful at this hospital; four cases are recorded.

Nerve stretching for sciatica has met with uniform success. Out of seven cases recalled, six were permanent cures, after having been for years treated in vain by almost every conceivable method. The seventh case was discharged improved.

The diachylon ointment of Hebra has proved the best all-around ointment for squamous eczema. It should be made with *olive* oil.

Only selected cases of hemorrhoids are injected. The clamp, scissors and cautery have given best results.

Burns, if extensive, after first being dressed with some protective oil or powder combined with bicarbonate of soda, are, upon the removal of sloughs, actually peppered with skin grafts. The compound resin ointment, with carbolic acid, then serves as a mildly stimulating dressing.

The use of dry powdered boric acid packing for cervical endometritis, erosions and ulcers of the cervix uteri has done away with the glycerine tampons.

Fractures are treated with Levis's splints, or Buck's extension, or plastic or silicate of soda immovable splints, as indicated. If of the jaw, the hospital dentists mould a rubber interdental splint. There is an intentional scarcity of fracture apparatus.

Morbus coxarius, if in the first stage, receives a light plaster, or glass spica, high shoe, and crutch. If the child is too young to use crutches, it is kept as much as possible running about in a Darrach

wheel crutch (see *Orthopedic Surgery*, Sayre, 2d ed., p. 466). The suppurative stage receives operative treatment, and rest in cuirass (opus cit., p. 302). Spinal caries is treated by the support of a Sayre plaster jacket and wheel crutch.

Ulcers of the leg, of whatever variety, are usually first poulticed, if sloughy, and, when clean, a dry powder dressing of bismuth, boric acid (impalpably powdered) or calomel is used under bandage from the toes up, with elevation of the affected extremity. Should granulations be protuberant, they are strapped with the ordinary basket strapping of surgeon's plaster.

A recent case of laparotomy for cystic degeneration of both ovaries was delivered, six weeks before the operation, of a healthy child. Only after her confinement, when her abdomen remained over forty-four inches in girth, was she suspected of having an ovarian tumor. A noteworthy peculiarity about this case was that the umbilicus was protuberant, as is seen in ascites. A double ovariotomy was made, and the patient walked about her room on the fourteenth day.

For all operations which are likely to expose and chill the lower extremities, the legs and thighs are wrapped in cotton batting, and loosely bandaged by the nurse, before the patient is brought to the operating-room.

Hick's vaginal speculum has been found to be all that it claims; it is absolutely self-retaining, and gives a wider field for operations upon the cervix uteri than others.

For the last five years Billroth's anæsthetic mixture (introduced here by Dr. Simpson: ether, three pints; alcohol and chloroform, each one pint) has been employed for operations. It is thought to be followed by less nausea than is ether, and is decidedly more agreeable to the patient. The average time of anæsthesia is eight minutes.

In our lying-in department we recently had a case of empyema in a woman in her ninth month of gestation. The right pleural cavity was aspirated of a little over a quart of pus at each tapping three times successively during the five weeks preceding labor; the last aspiration was made two days before her confinement. She was delivered under careful antiseptic midwifery, and recovered from her labor with no untoward symptoms, although her right pleural cavity was again full of pus on the tenth day. She refused permission to make free drainage openings, and, after another aspiration, she carried her child away to her own home, where she was lost to observation.

Pleuritic accumulations of serum are almost invariably removed by aspiration; but when not, active counter-irritation and diuretic treatment are practised.

More care is bestowed to make operations aseptic than ever before. Great cleanliness, free use of antiseptic solutions, sterilized instruments, silk, catgut, and wire; the use of boric acid, iodoform, free drainage, sublimated gauze, and indefatigable care and supervision on the part of the head nurse, have made a revolution here as elsewhere. The Lister spray is only used to wash the air of the operating-room before operation. There was recently an abortive attempt to revive the use of the Lister protective. The Mackintosh is still sometimes used when indicated to keep the dressing from becoming too dry.

At this hospital stimulants are given only when indicated, there being no record of their routine use.

Typhoid fever is treated expectantly. In hyperpyrexia antifebrin in four-grain doses has proved more efficient and safer than antipyrine.

Pneumonia is treated with the so-called pneumonia-jacket (cotton batting under oiled silk), and occasionally poultices are employed. No medicine is given unless demanded by alarming symptoms.

Those of our consumptives that survived the Bergeon treatment find great relief and sometimes actual benefit from the compound cannabis Indica mixture, introduced here by Dr. J. W. Stickler. Its formula is as follows:

R.—Tr. cannab. Ind.	℥ss.
Vironicæ (blue verbena) . .	gr. viijss.
Ext. buchu fl.	℥j.
Pulv. verbas. thap. (mullein) .	gr. xv.
Sacch. alb.	℥j.
Spts. vin. rect.	℥jss.
Mel. despumat.	℥ij.
Spts. chloroformi	℥ij.—M.

A tablespoonful of this on going to bed acts as a sedative and anodyne, and is followed by quiet sleep. The dose one drachm to one-half an ounce is given during the day, p. r. n., for cough. There are three standard cough mixtures: 1. Expectorant (mur. of amm., as its base). 2. Sedative (hydrobromic acid and chloroform with syrup). 3. Expectorant and tonic (mur. ammon. and digitalis its principal ingredients). We have found a mixture of quinine and alcohol, twenty grains to one pint, of much service as a bathing lotion for night sweats. When this fails we give the "ward sweat mixture," which contains to each dose atropine one-one hundred and twentieth of a grain, morphine one-sixteenth of a grain, acid sulphuric dilute ten minims.

Acute articular rheumatism is treated to best success at first with full doses of salicylate of soda at frequent intervals, followed in convalescence by iodide of potash and ferruginous tonics. Chronic rheumatism of a gouty history receives iodide of potash or the old Alonzo Clark mixture:

R.—Vin. colch. sem.,
Sod. et potass. tart.,
Aquæ . . . āa *partes æquales*.—M.
Sig.—one drachm t. i. d.

The histories of our patients are recorded as follows: We have an initial history sheet, and the usual Memorial Hospital Training School daily ward charts. The former contains blank spaces to be filled in on the first day of the patient's arrival by the assistant house physician, under the following printed headings: personal history, hereditary history, "special" (being a record of a woman's uterine history), past illness, past treatment, invasion of present illness, condition on admission, symptoms, physical signs, urine.

This sheet is kept not in the doctor's room or office of the hospital, but must be in the ward as long as the patient remains there. Thus, although there is no resident physician, and the house physician may not be present, the attending physician can review the "initial history" of the patient readily and by the bedside whenever he wishes to call for this sheet. All operative measures are recorded as soon as performed on the reverse side of the same paper. When the patient is discharged a brief *résumé* of the case, the condition of the patient on discharge, and the date of the same is written on the reverse side of this same initial history by the house physician with his signature. These sheets are now filed away in numerical order in covers containing lots of one month each. Twelve of these lots, from January to January, are deposited in one drawer of a little cabinet, made for this purpose, and the date belonging to them is painted on the outside. This arrangement is at once convenient and labor saving, and places the histories where they can readily be found. To find a record under this plan the name or the disease only of the case being in mind, the patient's register is first consulted and the number of the case noted, as well as the date of the patient's arrival. Knowing these facts it is a process of a very few moments to find the desired records.

ON THE MICROORGANISMS OF WATER.

BY CHARLES SMART, M.D.,
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LESS than a decade ago the title of this paper would have awakened in the mind of an appreciative observer a line of thought wholly different from that which it conjures up at the present day. The great world "spins forever down the ringing grooves of change;" and, perhaps, in nothing is this so evident as in the manner in which we have ceased to view the little world that lives and moves and has its being in the minute drop of water-sediment that we used to, but do not now, place on the microscope stand and study for hours for the light it shed on the possible quality of an unknown water. These microörganisms are there now, as they were then, although the pathways of inquiry lead no more to their open, animated fields, but reach past them into the dim obscurities of those microscopic nebulæ, the germs of the infinitesimal.

We were acquainted with bacteria in those days, but their presence was associated merely with the destruction of the organic débris of the microscopic field; and only when they formed a characteristic rather than an accident of that field did they become of importance as suggesting a putrefactive tendency in the water under examination. Many of these minute forms of life, formerly studied by sanitary inquirers, were of favorable rather than unfavorable augury, as they were met with in waters which experience showed to be wholesome. Among them were the symmetrical desmids and diatoms, the filamentous oscillatoriæ and nostocs with their transverse markings and constrictions, and the confervoid genera, the endochrome of which becomes converted into motile zoöspores, as in zygnema, spirogyra, zygogonium, conferva, œdogonium, and chætophora. The nostocs, however, when in great profusion were, from the experience of the Boston and many other ponds, occasionally suggestive of pigpen and other unpleasant odors and tastes. The lively motion of the tentacled infusoria, and of the ciliated acomia, alyscum and enchelys, gave rise to no thought of special impurity; nor did the entromostraca, cyclops, cypris, daphnia, etc.; the macrobiotus and hydrachna, or even the rotifers, unless present in excessive numbers; but oxytricha, kerona, and euplotes spoke of impurity, and when the anguillula was found, or the flat worms, the ciliated paramecia, or the elongated amphileptus or lachrymaria, the chemical inquiry was sure to develop doubts as to the character of the water. Lastly, when the palmellaceous algæ in their gelatinous fronds were associated with numerous vorticels, encysted or in full vitality, sluggish amœboids, or more active protoplasmic masses, such as monas, cyclidium, cercomonas, etc., the water which contained them might be set down without further examination as related rather to the swamps than to pure potable supplies.

When the teeming life of a water-sediment was first seen through the early microscopes there was opened as fascinating a field for speculation on the causation of disease as that which has recently dazzled the eyes of the scientific world with the splendor of its promise; but all this died out as the progress of time and science permitted a more intimate acquaintance with the so-called animalcules. It is needless to recall the occasional mistaken observations which sought to throw the onus of a particular disease on some innocent organism, as when Salisbury was led to saddle the paroxysmal fevers on a poor palmella. Not one of these organic forms was at the last in anyways connected with the development of disease, although the ever-varying shapes of

the amorphous protoplasmic masses of swamp waters looked, no doubt, to many, as if they might be the essential leaven of malarial disease. The existence of the infusoria in a water was noted merely as furnishing evidence corroborative of that yielded by the chemical examination.

And that examination had just succeeded in attaining to a certain degree of scientific accuracy. It had escaped from the thraldom of methods which seemed to be empiric; and that which it could do was well recognized and discriminated from that which it aimed to do but could not. Is it true that the less we know of a given subject which is our special study the greater is our assumption of knowledge? When the analyst burned the dried residue of his evaporations and found out how much was dissipated by the ignition, did he deceive himself as well as others when he announced that the water contained so many grains of organic matter in the gallon? No. He was merely embodying his results in an intelligible expression which would obviate the necessity of explaining in every instance the manner and method of his analytical work. He was familiar with all its shortcomings and fallacies, and his aim was ever their removal or the substitution of a more accurate method. Following the rough estimation of the organic matter from the loss of weight on ignition came the determination of its carbon and nitrogen as giving infinitely greater precision to the expression of its quantity; but the easier methods of approximating to the nitrogen by transforming it into ammonia, and of ascertaining the totality of the oxidizable elements by the use of permanganate of potash, gave a stronger impulse to the study of potable waters than the determination of the organic elements. In each of these instances a better expression for the organic matter was obtained than by the method of ignition, and as the results from one water were always comparable with those from another, scales of purity or impurity were created for each method based upon the results which were obtained from waters that were known to be wholesome or unwholesome, or contaminated in various ways and yet not convicted of unwholesomeness. The analysts, therefore, in announcing an examined water to be one of great organic purity, of medium purity, of doubtful purity, or an impure water, gave expression not only to the results of their analysis of the particular water, but to the results of their experience with other and known waters of the classes mentioned. What the chemical examination succeeded in doing was this: It compared one water with another, or the same water at different times, or after subjection to different modes of purifying treatment; and it intimated with more or less precision whether the organic matter present was fresh or decomposing, vegetable or animal, from the uplands or the sewers. What it failed to do was to associate with unwholesomeness the impurities it detected, or with wholesomeness the purity which it announced. A water impure from vegetable matter or human excrement might be harmless, while another rated as of great organic purity might contain the germs of a typhoid epidemic. But practically, these possibilities, which it failed to indicate, were more than offset by the probabilities that there was a greater likelihood of pathogenic development where there was much than where there was little impurity.

Just at this stage of their progress the analysts were pushed into the background by the brilliant promise of bacteriological research. Davaine had discovered the bacillus of anthrax, and Obermeyer the spirillum of relapsing fever, but neither of these events interfered with the progress of sanitary analysis. Koch introduced the slender bacillus of tubercle to the profession, but not until the day of his comma bacillus did the new era dawn. In investigating the causation of cholera, he discovered in the water of some tanks near Calcutta that peculiar curved microörganism, which he had already found in Egypt and in India in the stools of cholera-patients, and which he regarded as the cause of the disease. It was evident, from the want of attention to cleanliness so common in India, that this tank-water was tainted with cholera dejections. A local epidemic existed around it in the huts which obtained their water from this source; and on the subsidence of the epidemic the bacillus was found to have disappeared from the water. In the progress of his studies, Koch developed a method of cultivation for the bacteria in water, and since then it has seemed as if the whole aspect of the water question had changed. The impurity of the chemist, which might or might not be harmful, and the purity, which might or might not be harmless, were to give place to positive information. Wholesomeness or unwholesomeness were to be determined instead of purity and impurity, and bacteriological cultivations immediately supplanted the study of the innocent organisms which were briefly enumerated in an antecedent paragraph. The scientific world was fascinated with the possibilities of the new method. The educated and intelligent public were kept informed of the developments and expectations by popular lectures and scientific writers, and scraps of information filtered down through the columns of the daily press to ordinary humanity. The germs of the invisible myriads that swarm as an omnipresent cloud in the "air we breathe," and in yet denser masses in the "water we drink," were susceptible of cultivation on a gelatinous field. Suspected individuals of the bacteriological flora could be transplanted to special beds where they might reach the acme of their development unimpeded by any struggle for existence with the ordinary bacterio-

logical weeds. The microscope would reveal the distinguishing characters of the new plant—root, stem and branch, bud, blossom and fruit—and biological inquiry would settle its position as a pathogenic element. But the anticipations of the enthusiasts, onlookers of course, continue to await their realization; while the workers labor sedulously in the rut of the master, realizing only a fresh illustration of the well-appreciated fact that progress in an inquiry of this kind is a plant of uncommonly slow growth. Something, however, has been accomplished. The new method has succeeded in developing the difficulties by which it is surrounded, and in casting doubt on its own results as a gauge of the quality of the water-supply; it has, in fact, reached that stage of its history which finds its parallel in the history of sanitary analysis when the chemists recognized that loss on ignition could no more be regarded as giving expression to the totality of the organic matter, and that their work must be set aside as of no practical value unless something was done to improve the methods.

The bacterioscopic method of water analysis is, like every development relating to the bacteria, so well and generally known that a reference merely is needful to its details. The culture-medium is a peptonized meat-juice, containing about ten per cent. of gelatin, which keeps it solid to about 77° F. It is prepared by digesting chopped meat in distilled water for twenty-four hours in a refrigerator. After expressing the meat, the resultant liquor is boiled, to coagulate its albuminoids, and strained through flannel. The gelatin, with some peptone and chloride of sodium, is then added, and the whole filtered while hot. Any acidity that may have developed is neutralized by the cautious addition of carbonate of soda. It is then transferred to a series of test-tubes, each receiving about ten cubic centimetres (two and three-quarters drachms). The charged tubes are sterilized by an exposure of ten or fifteen minutes in a steaming vessel on each of three successive days, and after this, if the jelly remain free from bacterial developments for several days, it may be regarded as fit for use.

When a water is to be examined, the jelly in one of these tubes is liquefied, and the water dropped in from a small-nozzled pipette, and intimately mixed by agitation. If the water is known to be poor in germs, half a cubic centimetre (eight minims) may be added; but if its character is unknown, a much less quantity should be used, or several tubes may be taken, each to receive a different quantity, or the same quantity of a different dilution. The jelly is then poured on a level glass-plate, over which it spreads, scattering its contained water-germs in its progress, and fixing each in its separate place by a rapid congelation, artificially promoted. The plate, reposing in a moist glass chamber, is then set aside at the proper temperature, about 68° C., for germination and growth. After a few days the bacterial colonies appear. They vary in size and shape, some minute, some larger and spreading, some round or oval, smooth or tuberculated, and some liquefying the jelly which is their nidus. The colonies are counted, and the deduction from the experiment is that the water is good because it contained but few germs, or it is bad because it contained many germs, just as a quarter of a century ago, in the undergraduate days of sanitary analysis, the deduction was made that the water was good because there was no blackening on ignition and little loss of weight, or that it was bad because there was much loss of weight, blackening, and nitrogenous or nitrous fumes; but, as will be seen directly, the collateral experience which gave a certain amount of precision to the dictum of the chemist fails to support the deductions from the biological experiment.

There are, in the first instance, several objections to the *method* of the cultivation experiment. Bacteria may exist in the water in chains and zoöglæa masses which will not be broken up by the agitation of the tube; and, in consequence, germs which, if properly distributed, would have given rise to many points of bacterial growth, may in the actual experiment originate but few. Again, the results may differ according as the field under cultivation is exposed to or excluded from the influence of light; and in this connection Bischof has made a suggestion which may prove to have a practical value, to the effect that cultivations which are intended to develop pathogenic organisms should be conducted in the dark, as it is unlikely that those which find congenial conditions within the human body are materially dependent on the influence of light for their development and growth. There is also an important objection to the *material* of the culture-field. As in agriculture the same crop does not grow equally well on all soils, so in bacterial cultivation, germs that are found to thrive luxuriantly in one soil may fail to prosper in another; and, as a matter of fact, many organisms that do not germinate in the peptonized meat-jelly are successfully grown on potato, Iceland moss and other vegetable substances.

But, passing over such objections as these, and supposing the colonies of the culture-field to give an accurate representation of the number of germs present in the water under examination, what bearing has this number on the important question of wholesomeness? In reply to this, Bischof has presented for the consideration of the Society of Health Officers of Great Britain his experiments on the storage of New River water. A sample of this water, freshly drawn and acknowledged to be of good quality, yielded fifty-three colonies per cubic centimetre. Now, it is well known that the bacteria of certain

waters increase and multiply during the storage of the water; but there is no evidence that a wholesome water becomes unwholesome merely because it has been stored in the cistern or reservoir for so many days before it is distributed for use. On the contrary, the evidence is overwhelming that a good water remains good, and even that an impure water, chemically speaking, becomes purer during the period of its storage. Changes are in progress in the water, but these are all, still speaking chemically, in the interest of the consumer, for organic matter becomes transformed into the transition product ammonia, and this into the purely inorganic and harmless nitric salt. The present writer, in the course of Prof. Mallet's inquiry into the value of chemical analysis as a means of determining the wholesomeness of water-supplies, made many experiments, recorded in the *Report of the National Board of Health for 1882*, on the progress of purification during storage. Organic matter disappeared, and ammonia, nitrous acid and nitric acid were in sequence formed,—a retrograde movement from the notoriously pathogenic possibilities of putrefying organic matter to the harmlessness of inorganic salts. But these were merely chemical results. What did Bischof find? He found that when the water of unquestioned quality, which gave only 53 colonies per cubic centimetre (16 minims), had been stored five or six days it yielded on the gelatin-culture plate 770,000 bacterial colonies, a number seventeen times in excess of that obtained from the Thames water at London Bridge. Must we believe that the wholesome water became unwholesome during that short period of storage, although chemical experience shows the tendency of storage to be toward purification, and practical experience throws no suspicion on the quality of the stored water? We can only conclude that 770,000 colonies per cubic centimetre are not inconsistent with wholesomeness; and if a water may contain from 53 to 770,000 without question as to its wholesomeness, what value, it may be asked, attaches to the intermediate hundreds, to the intermediate thousands, to the intermediate hundreds of thousands? Nor should it be forgotten that these extreme results were obtained from the same water. The number of colonies seems, therefore, to depend on whether the water was examined on one day or on another. Of a truth, the chemical inquiry is more consistent in its views of the same water from day to day than is the bacterial culture.

The detection of minute quantities of sewage in a water, impure from other causes, is regarded by chemists as a difficult problem; but sewage in large quantity in an impure water, or in small quantity in an otherwise pure water, presents no difficulty. How does the bacterioscopic inquiry deal with this question? Bischof again replies: He added sewage to a sample of New River water, and after storing it for six days, as in the parallel experiment with the pure water from the river, he found that the bacteria in the latter exceeded those in the tainted sample almost twenty times. Again, the inquiry is presented: What is the value of the number of colonies per cubic centimetre of the water examined? Since their number throws no light on the wholesomeness of a water, and gives no intimation of the existence of that which is known to be often a dangerous contamination, the chemical analyst may be exonerated from all imputation of personal, professional or scientific prejudice if he inquire,—what then is the value of the gelatin-culture in practical sanitary work?

Necessarily the bacteriologist has to fall back upon his ability to discriminate between the microphytes —to distinguish those that are harmless from those that are harmful. To do this he has to transfer them to blood-serum, potatoes, bread paste, and other nutritive media to obtain pure cultivations, and to examine these microscopically for the determination of their characteristics, which are simple enough, it is true, but complex in their very simplicity. The bacteria are thick or thin, straight or curved, oval, rounded or square at the ends, long and filamentous, or so short as to merge into the torula or coccus; the cocci of all sizes, consistent with their individuality as cocci, and presenting every form of aggregation from single to zoöglæa; and the whole, perhaps, mixed with shreds of mucor, mycelial threads, spores, etc. Every water has a variety of forms, though in some the bacteria, and in others the cocci predominate. The observer is lost in the uncertainties of his field, and no one knows which of the forms, if any, are dangerous.

When facts are lacking, speculation never fails to come to the front. The possibility of the transformation of species, as suggested by Buchner and Nägeli, looms up before the mind of some and envelops every microbe in an obscurity of pathogenic possibilities,—harmless they may be under ordinary circumstances, but capable on account of the rapid succession of generations, of becoming developed into dangerous characters. A series of ages was necessary for the evolution of the imperial man of to-day from the shivering savage of pre-historic times, but the bacterial ages are so brief that with a changed environment a day may suffice to alter forms, dispositions and endowments. And the clinical experience and general knowledge of the physician start into prominence in this connection, recalling how tonsillar and other inflammations assume a diphtheritic aspect, and fevers a typhoid type, and how even the dangerous typhus, nay, even the plagues and pestilences of former times would assuredly be recalled by a return to the insanitary conditions that were associated with their outbreak. Other observers, while exonerating many of the

bacteria from the charge of virulent possibilities, are inclined to believe that in numbers there is danger; that there is a greater likelihood of the presence of pathogenic species in a water that contains many species than in one that has few. Others, again, recognizing the harmlessness of bacterium termo, are inclined to believe that in numbers there is safety; that there is a greater likelihood of the presence of pathogenic individuals in a water that contains few individuals or species than in one that has many. These remember the destruction of septic poison by the progress of putrefaction; they remember Koch's opinion that the comma bacillus probably gives way before the putrefactive bacteria; they recall the struggle for existence that pervades creation, and that the dominating race to whom the conditions are congenial, usually denies the means of vigorous growth to the unacclimated stranger. Hence, when a water contains few microbes they fear that the pathogenic germ, if present, will have full possession of the field and attain the utmost development of its virulence unchecked by the aggressive growth of other and harmless competitors.

Fortunately, in this incertitude, there is one thing certain, and that is, that the majority of the water bacteria are harmless. Daily experience proves this, in view of the numbers in every glass of water. The bacteria of putrefaction cannot be considered pathogenic. A draught of tainted water may occasion diarrhœa, but this appears to be due to the products of their vital action on dead organic matter rather than to the action of their vitality on the living system. In the retrogression of the elements of dead organic matter to the inorganic state, effected, as is now known, by the vital processes of the microphytes, there are many transition products, some of which are surely unwholesome, but nature, careful always, has attached to them this putrefactive taint to indicate that the work of the microbe is as yet unfinished, and the material unfit for human ingestion. Taken by themselves, without their organic nidus, there is no evidence that these bacteria are injurious. They are present in many waters in association with decomposing matters, but this association negatives their claim to be considered water-bacteria.

The water-bacteria of potable waters are, however, allied to the microbes of putrefaction by the nature of their work. Like the latter, they are engaged in the regeneration of the world, preparing the ammoniacal results of putrefactive fermentation for assimilation by superior vegetation. From what source do our waters obtain their myriads of bacteria? Pure rain-water—that is, water that has been collected after the atmosphere has been cleaned by a previous fall—has few organisms, and deep well-waters have also few; but water that has come in contact with the surface of the earth has many. The water-bacteria are derived from the surface of the soil. Dr. Theo. Smith, of Washington, D. C., in cultivating the waters of the Potomac River on the gelatin-field from month to month,[1] was surprised to find that in summer they yielded only from 50 to 200 colonies per cubic centimetre, while in winter the number ran up to 4000. Temperature appeared to him to be at fault as a developmental agency; but he explained the causation of the increase in noting the facts that the smaller numbers were always associated with a clear and unclouded condition of the stream, while the larger numbers were as invariably associated with turbidity. The bacteria were washed into the stream with the particles of their habitat. Warington has lately shown that the organisms of nitrification are confined mainly to within one or two feet of the surface. In the soil these bacteria complete the transformation of organic ammonia into nitric salts, and when washed by rainfalls and snow-meltings into the river course, they continue their work on the ammonia of the water as the agents of the so-called purification of the running stream. Several years ago the present writer experienced much difficulty in explaining the favorable change which took place in cistern-waters that are stored underground, as compared with similar waters contained in clean cypress-wood tanks; and the anomaly of finding a purer water in a wooden cistern with a thick layer of foul sediment at the bottom than in one that was new or newly cleaned, was even more unintelligble until the fact was recognized that the bacteria of nitrification had been introduced into the one set of reservoirs and not into the other. The dust of summer, settled on the shedding roofs and washed into the cisterns with the inflow of subsequent rainfalls, accumulated in the progress of time to a fermenting mass which tainted the water; but for a long time before this ultimate result was reached it effected the dissipation of ammonia, and, chemically speaking, improved the character of the water by the introduction of the microbes of nitrification. The same purification would have been effected by substituting for the organic compost from the roof a layer of clean sand or gravel from the surface of the soil. The writer has frequently started the process of nitrification in laboratory experiments on dilute ammoniacal solutions by dropping into them a fragment of clean gravel or straw picked from the surface of the ground. These bacteria which enter into our river waters by thousands in every cubic centimetre when the streams are turbid, exercise no injurious influence on the human system. They seem even to have no transition products to complicate this question; for the nitrogen on which they operate is already on the verge of the inorganic state. It is true that the presence of

[1] THE MEDICAL NEWS, 1887, l. p. 404.

nitrates in notable quantity in a water is generally regarded as lowering the standard of its quality on account of the association of such waters with the propagation of typhoid fever; but this reputation of nitrified waters is referable to the material from which the nitrates are formed, not to their bacterial manufacturers. Excess of nitrates in a water is due to preëxisting sewage, and we know the typhoid germ to be the occasional associate of the sewage. In fact, the results of sanitary investigations into the propagation of acute infectious diseases by the water-supply, point clearly to animal excreta as the causative agencies. A peculiar bacillus or micrococcus may be concerned in each instance, as in cholera we have the comma bacillus, but if there is no sewage in the water the probability of danger is small. If sewage be excluded, the number of microbes in the cubic centimetre is of comparatively small consequence in determining questions of wholesomeness.

We must conclude from this brief review of certain questions relating to the existence of the micro-organisms of water, that the gelatin culture-test is valuable only in its doubtful promise for the future. At present, in the hands of the sanitary inquirer, it gives but little information, and that little is surrounded on all sides by interrogation points. In the laboratory of the scientific investigator new methods may be discovered by which pathogenic germs may be isolated and identified; but until that time arrives the sanitary analyst must depend upon the chemical results as translated in each particular instance by the aid of the ascertained sanitary environment of the water, and however much he may cultivate the microbes, he should not forget to inspect that other field of microscopic life to which reference was made at the beginning of this paper.

MEDICAL PROGRESS.

Silico-fluoride of Sodium as an Antiseptic.—ROBSON, in the *British Medical Journal* of May 19, 1888, reports that the following are the conclusions to which he has come, after an extensive and varied trial of the fluosilicate.

1. That "salufer" (silico-fluoride of sodium) is an efficient antiseptic.

2. That the powder is a strong irritant, even acting as a caustic if dusted on a raw surface, and is, therefore, in that form, unavailable for surgical purposes.

3. That a solution of one grain to an ounce of water is quite strong enough for ordinary purposes, in that strength being apparently unirritating.

4. That a solution of ten to twenty grains to a pint may be safely used to syringe out closed cavities, even where one cannot be certain of all the fluid returning.

5. That the solution is unirritating to the hands, which is no small advantage to those operators whose fingers are easily irritated by the ordinary antiseptic solutions.

6. That the solution acts on the glaze of porcelain after long use, and corrodes steel instruments, but that sponges are unaffected by it. Mr. Thomson kindly suggested to him the addition of bicarbonate of soda to the solution of "salufer" to prevent it corroding steel instruments; this certainly diminishes its action on steel.

8. That a very convenient and comfortable antiseptic poultice may be made by soaking Gamgee tissue or absorbent wool in a hot solution (ten grains to the pint), wringing it free from excessive moisture, applying it to a wound, and covering with gutta-percha tissue.

8. That although for ordinary surgical work he may still employ perchloride of mercury, in all cases where there is danger of absorption, as in syringing out cavities, he will employ "salufer."

9. That he believes "salufer" will prove to be of great use to obstetricians, it being both safe and efficient.

10. That it acts very efficiently as a deodorizer to the hands. After examining carcinoma of the uterus or rectum, by washing and steeping the hands in a saturated solution, the odor was removed more efficiently than by any solution with which he is acquainted. Messrs. Reynolds & Branson have made some compressed tabloids, each containing forty grains—that is, sufficient to make a quart of solution. They have also been good enough to carry out his wishes in making a dressing of "salufer" wool.

In all the cases related this "salufer" wool has been the dressing employed, a layer of gauze wet with the "salufer" lotion covering the wound, and intervening between it and the wool.

For Painful Menstruation.—DR. B. W. RICHARDSON (*Asclepiad*, No. 18) recommends the following formula:

R.—Croton chloral	gr. ij.
Oil of juniper	♏iij.
Glycerin	℥j.
Distilled water	℥iss.

To make a draught; to be repeated every five or six hours until relief is obtained.

The Prevention and Treatment of Cholera.—CANTANI, at the recent Congress für Innere Medicin, at Wiesbaden, presented a paper on this subject, of which the following is a résumé.

Until recently the treatment of cholera has been, in the main, symptomatic. Some attacked the diarrhœa with opiates, alum, acetate of lead, etc.; others endeavored to eliminate the poison by emesis and purgation; still others attempted acidifying the stomach, alcoholic measures, hydrotherapy, etc.,—still, on the whole, these therapeutics were unsuccessful. A change took place as it was recognized that: 1. One cause of death from cholera is the coagulation of the blood. 2. The comma-bacillus is the source of the intestinal irritation. 3. A second cause of death is the collapse from acute, chemical cholera poisoning. Both causes may act alone or together. Still, the danger depends upon the bacillar infection of the intestine.

From the preceding, the demands for treatment are indicated: 1. Limitation of bacillus multiplication in the intestine. 2. In the removal, or neutralization of the cholera poison, and 3. In relieving the coagulation of the blood. The first indication can only be met in the beginning of the disease, be it by unfavorably affecting their soil by acids, or by destroying the bacilli; but

they are not to be reached by mouth and stomach, but only through the rectum by enemata.

The only remedy which renders sterilization of the intestinal canal possible, without doing the patient harm, is tannic acid. Hot injections of tannic acid (100.4°-104°) in the strength of 75, 150 or 300 grains to two or three pints of hot water, with the addition of 20 to 50 drops of laudanum, are capable of destroying the bacilli in the intestinal canal or at least of checking their development. This has been demonstrated by experiment as well as by experience at the bedside. Tannic acid enemata find special application in the incipient diarrhœa. Rightly applied, they are capable of checking the development of the disease. In times of cholera, they should be used in every suspicious diarrhœa.

Concerning the second indication, there is to-day no longer any doubt of the existence of a chemical cholera poison, which may cause collapse without any notable diarrhœa. The condition of the intestinal contents has a definite influence upon the development of this poison (ptomaine); the more bacilli in the canal, the more the poison. We know no antidote; fortunately, tannic acid is capable of restraining the poison already formed in the intestinal canal, and preventing its absorption.

For the coagulation of the blood and its sequelæ, we have the introduction of water into the organism, be it by injection into the veins or into the subcutaneous connective tissue. The latter is entirely harmless and easily performed, and to be preferred to the dangerous and difficult intravenous injection. The hypodermatic injection of a solution of carbonate of sodium 3 parts in 1000 with a solution of chloride of sodium 4 parts in 1000, replaces the lost water, meets the need of the tissues for acids, and furthers the elimination of the noxious matters in the blood.

In conclusion, the tannic acid enemata and the salt water hypodermatic injections fulfil the three chief therapeutical indications, but both are stimulant and reviving by reason of their warmth. The enemata are used preferably in the beginning, the hypodermatic injections only in the later stages of the disease, but in advanced cholera it is best to use both.—*Wiener medizin. Presse*, May 20, 1888.

Exsection of the Vermiform Appendix in Perityphlitis with Consecutive Suppurative Peritonitis.—The Vienna correspondent of the *British Medical Journal* of June 9, 1888, writes that DR. BRENNER, Assistant to Professor von Dittel, showed a patient, aged nineteen years, who had been admitted into Professor von Dittel's clinic in March last, with symptoms of severe intestinal obstruction. The history of the case and the intense pain in the cæcal region led them to conclude, with a certain degree of probability, that they had to deal with perityphlitis and consecutive suppurative peritonitis. Laparotomy was performed on the day of admission. After opening the abdomen, a great quantity of pus escaped; the intestines were washed with a solution of salicylic acid; and on close examination it was found that there was an abscess in the region of the cæcum, around the vermiform appendix, which was perforated. The vermiform appendix was ligatured and removed. The part of the cæcum which had become affected by the suppurating process was drawn forward and fixed to the abdominal wound by means of sutures, as resection of the intestine could not be done, owing to the collapsed state of the patien during the operation. The abdominal wound was closed and healing took place by first intention. Three other cases of suppurative peritonitis following perityphlitis were treated in the wards of Professor von Dittel by laparotomy, but all ended fatally. Dr. Brenner remarked that the recent advance in the surgical treatment of these cases consisted in the fact that operation was resorted to at an early date, and that the affected part of the intestine was removed from the abdominal cavity. This was the first case of healing after exsection of the vermiform appendix when general peritonitis was already present.

Salicylate of Mercury.—The *Revue Générale de Clin. et de Thérapeutique* of May 17, 1888, gives the following formulæ for salicylate of mercury, as used in Brazil:

In pill form:

Hydrarg. salicylat. . . .	gr. ⅙.
Ext. geissosperm. læv. . .	gr. ⅚.
Ext. glycyrrhiz., Glycyrrhiz. pulv. . . .	āā q. s.

M. ft. in pil. ten in num.
Dose from two four pills daily.

For external use:

Hydrarg. salicylat. . . .	2 to 5 parts.
Vaselin.	30 "

Hypodermatically:

Hydrarg. salicylat. . . .	gr. $\frac{1}{15}$ to ⅙.
Aquæ destill.	℥ 2½.

For an injection.

By urethral injection:

Hydrarg. salicylat. . . .	gr. 2¼.
Sodii bicarbonat. . . .	℥ 7¾.
Aquæ rosæ	℥ 2¾.

For an injection.
These injections should be given daily.

Saccharin Diabetes and Alterations in the Pancreas.—LANCEREAUX, in a recent communication to the French Academy of Medicine, expressed the view that diabetes, as the term is commonly used, includes several processes one of which especially affects the pancreas. The first he described as acute diabetes, having a rapid evolution and course, and accompanied by well-marked changes in the pancreas. The second is a type better known than the first, accompanied by an increase in the patient's flesh, by chronic disease of the articulations, and not usually characterized by lesions of the pancreas; this condition is known as constitutional or fatty diabetes. A third type is that produced by a lesion of the nervous system, traumatic or emotional; it is accidental, accompanied by mild symptoms, is wanting in pathological organic changes, and tends to recovery. Lancereaux thought that the clinical significance of this classification is evident.—*Gazette Hebdomadaire*, May 4, 1888.

Acute Parenchymatous Tonsillitis Treated by Cocaine.—At a recent meeting of the Clinical Society of London, DR. DE HAVILLAND HALL read notes of three cases.

Case 1.—A laborer, aged twenty-eight, was admitted into

Westminster Hospital on Sept. 28, 1887, suffering from quinsy. He had had two similar attacks in the last five years. On admission, he had been ill four days. The right tonsil and adjacent soft parts were enormously swollen, and he was unable to swallow without the greatest difficulty and pain. On the 30th there was complete inability to swallow, but, after painting a twenty per cent. solution of cocaine freely over the whole of the fauces, the patient was able to swallow some bread and milk. The same night the left tonsil became affected, and the cocaine solution was applied again next day with an equally good effect, and the day following he was able to swallow bread and butter. No suppuration occurred. The patient left the hospital quite well after being in one week instead of four and three weeks respectively, as on the two former occasions.

Case 2.—A publican, aged twenty-five. When seen, his complexion was dusky; he was suffering from some dyspnœa and great dysphagia. Both tonsils and the soft palate were greatly swollen, and were covered with a viscid secretion, but there was no false membrane. Pulse 120, feeble. Urine, specific gravity 1030, loaded with albumen. The patient's condition was a most anxious one. The throat was swabbed out with a twenty per cent. solution of cocaine, and the application was repeated in ten minutes. Five minutes later, the patient was breathing more easily, and was able to swallow half a pint of egg, milk and brandy. During the next two days, applications of cocaine were made night and morning, and one on the third day. The patient gradually improved, no suppuration occurred, and a week later the urine was free from albumen, and he was well.

Case 3.—A porter, aged thirty-nine, attended at the Throat Department of the Westminster Hospital on Nov. 16, 1887, complaining of sore throat and inability to swallow for thirty-six hours. He was previously quite well. The left tonsil and adjacent parts were swollen, and there was a yellow patch on the tonsil. Pulse 88, fair volume. Temperature 102.2°. The urine contained a trace of albumen. A twenty per cent. solution of cocaine was applied, and the patient was soon able to swallow half a pint of bread and milk. Four days later the patient had no difficulty in swallowing, and was practically well.

In all three cases, as soon as the patients could swallow easily, tincture of the perchloride of iron, with or without quinine, was ordered. Dr. Hall pointed out that cocaine has a twofold action in these cases; it diminishes the sensibility of the parts to which it is applied, and at the same time lessens the blood supply; hence deglutition is much facilitated. He also thought that it checks suppuration. He advised the throat to be sprayed with a solution of bicarbonate of sodium, ten grains to the ounce, before the cocaine is applied; by this means less cocaine is needed, as it appears that cocaine acts more efficaciously in the presence of an alkali. Dr. Semon said he had seen cases in which cocaine had been too freely used. Patients obtained cocaine pastilles from the chemist, and used them indiscriminately. A lady suffering from hay asthma, with cough, coryza, etc., being ordered a ten per cent. solution, procured one of twenty per cent., which she used occasionally for two years to the nostril. One night, after so using it, she awoke from sleep feeling very ill, and with her heart's action very irregular. She recovered after a time, and had since then had a wholesome fear of cocaine. Another patient, a gentleman, had severe poisonous symptoms from the use of only the sixth part of a grain. In fact he (the speaker) was of opinion that some patients could not use it. On the other hand, he had seen a patient suffering from tonsillitis, who had had aphasia for twenty-four or thirty-six hours, become able to swallow with some comfort only ten minutes after an application of cocaine to the fauces.

Dr. Hall, in reply, mentioned that last week he had used a twenty per cent. solution of cocaine to the nostril of a young man, who was very strongly affected by it, became faint, and had to lie down for nearly an hour before the effects passed off, although ether and other stimulants were given. He always applied the solution now with a brush, all the cases in which untoward symptoms had showed themselves having been when he used the spray. He observed that peri-tonsillar inflammation seemed to take place in some cases when practically no tonsillar tissue was left. He thought that cocaine was only of use in parenchymatous tonsillitis; the same good results had not followed its use in follicular tonsillitis.—*British Medical Journal*, May 19, 1888.

Laxatives in the Treatment of Fatty Heart.—Kisch, in the *Internat. Klin. Rundschau*, No. 10, 1888, prescribes a useful purgative for this condition as follows:

℞.—Pulv. rad. rhei.,
Extr. alœs,
Ext. jalap. . . . . āā gr. 30.
Pil. mass. . . . . q. s.
Ft. pil. thirty in num.
Sig.—One pill at evening.

In anæmic patients:

Ferri sulph. pur. . . . . gr. 45.
Extr. alœs . . . . . gr. 30.
Pil. mass. . . . . q. s.
Ft. pil. thirty in num.
Sig.—One pill morning and night.

When compensation is becoming exhausted digitalis may be combined with laxatives as follows:

℞.—Pulv. rad. rhei.,
Ext. alœs. aq.,
Pulv. fol. digital. . . . āā gr. 30.
Pil. mass. . . . . q. s.
Ft. pil. thirty in num.
Sig.—One pill every three hours.

Erythrophlœin.—Dr. Adolf Onodi gives, in the *Orvosi Hetilap*, a summary of his observations on twelve patients, and concludes that erythrophlœin is undoubtedly a powerful anæsthetic, the effect of which comes on more slowly, but, on the other hand, lasts much longer, than that of cocaine. Local anæsthesia persists for eight hours and even longer from the time of instillation. It has, nevertheless, very disagreeable after-effects, such as headache, giddiness, sometimes even fainting fits; in particular it dims the cornea for several hours. When applied to the nose, the mouth, the soft palate, and the external orifice of the urethra, a 0.20 per cent. solution caused a slight sensation of burning. He did not venture to use stronger solutions.—*British Medical Journal*, May 19, 1888.

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SATURDAY, JUNE 30, 1888.

THE INFLUENCE OF HYDROFLUORIC ACID ON TUBERCLE BACILLI.

IN THE NEWS of May 5th, DR. E. L. TRUDEAU narrated some carefully performed experiments, showing the influence of hydrofluoric acid in retarding or checking the growth of the bacilli, and he found that in rabbits inoculated, less tubercle invaded the lung tissue in those subjected to the inhalations. In the *Bulletin Médicale* of June 3d, GRANCHER and CHAUTAUD report the results of their studies on this important question. Rabbits inoculated with tubercle cultures, and exposed for two hours daily to an atmosphere which had passed through a ten per cent. solution of hydrofluoric acid, died about the same time, and showed the same lesions as animals not subjected to the treatment. Solutions of greater strength, forty per cent. and sixty per cent., were also ineffectual, and they conclude that the inhalations have no action on the evolution of the bacilli in experimental tuberculosis. They found the resisting powers of the bacilli in cultures much greater than had been supposed. Even cultures treated for four hours with vapors from solutions of forty, sixty and eighty per cent., and, lastly, the pure commercial acid destroyed life, but more slowly, indicating that the action of the gas diminished the virulence of the bacilli. The authors regret that these observations do not encourage the hopes which have been entertained as to the high therapeutic value of inhalations of hydrofluoric acid in phthisis.

A MONUMENT TO THE DISCOVERER OF CHLOROFORM.

THE Jefferson County (N. Y.) Historical Society proposes to erect a monument to the discoverer of chloroform, Dr. Samuel Guthrie. That Society assumes this graceful duty in addition to that of perpetuating the memory of the soldiers who fell at the battle of Sackett's Harbor, the battlefield having been secured in the interests of these two patriotic undertakings.

Dr. Guthrie was born in 1782, his father having been a physician of Brimfield, Mass.; he died in 1848. During the War of 1812 he was examining surgeon, and did chemical work for the military posts in northern New York. In 1817 he took up his residence at Sackett's Harbor. He published in *Silliman's Journal* for October, 1831, an article describing the preparation and properties of "A Spirituous Solution of Chloric Ether." The ether was made by distilling chloride of lime with alcohol. His paper was in the hands of the publisher as early as May 8, 1831, and was completed some months before that date. These data conclusively establish the priority of the American discovery of the world's great anæsthetic, since Liebig had not published his account until November, 1831, and Soubeiran's did not appear until January, 1832. The race between these three independent discoverers is a close one, but to Guthrie must be awarded the honor of first making and describing the substance which we now know as chloroform—a name originated by Dumas in 1835. It is a curious fact that Guthrie, during forty years of his life, devoted much time and thought to the improvement of gunpowder, and it is quite possible that both that destructive compound and the anæsthetic that was to be were in hand at one and the same time.

THE Centennial volume of the *Transactions of the College of Physicians of Philadelphia* has been made the subject of a *feuilleton* by Dr. Joseph Schreiber in a recent number of the *Wiener klinische Wochenschrift*. As an illustration of the appreciative and sympathetic style of the original, we may quote the concluding paragraph.

"The impression we have received from reading the *Transactions* is truly beneficial and satisfying. We meet a medical society composed of *savants* and practitioners, in useful sympathy with the community, and honored and supported by public opinion; a medical society which, con-

ducted on true democratic principles and animated by a spirit of perfect equality, has for its president one who, though clothed with no academic dignity, has acquired a name, as author and physician, that resounds far and wide. May the fresh pulsating life and youthful energy of the College be preserved for all the centuries to come."

The new Institute of Hygiene at Rostock, of which Dr. Uffelmann is director, was opened at the beginning of the present summer-course. The southern wing of the former Gynecological Institute has been reconstructed for the purpose—the northern wing being occupied by the new chemical laboratory, and contains, besides rooms equipped for experimentation on animals and the servants' apartments, eight rooms for the purposes of academic instruction. On the ground floor there is a room for specimens, another for bacteriological research, another for the library and the room of the director; on the upper floor the lecture room, two rooms for practitioners, and one for scales and other fine instruments. Adjacent to the Institute on the west is an extensive garden, permitting of the study of the earth and of the air.

The advance which the opening of this Institution brings with it is most marked, as the building hitherto devoted to instruction in hygiene was, in extent and accommodations, insufficient to meet the demands. The present building, however, is satisfactory in all respects. The practical courses of the Institute are well attended.

The Rhode Island Medical Society, at its seventy-seventh annual meeting, held at Providence on June 14th, elected Dr. Albert Potter to the presidency for the ensuing year.

The American Rhinological Association will hold its sixth annual meeting at Cincinnati, Ohio, September 12, 13 and 14, 1888.

The Trustees of the Fiske Prize Fund have awarded a premium of $200 for the best essay on "What changes has the acceptance of the Germ Theory made in measures for the prevention and treatment of consumption?", by Dr. Charles V. Chapin, of Providence. No award was made for any essay on the subject, "Antisepsis in Medicine and Surgery, with original observations and experiments."

The following subjects are submitted for the years 1888–1889: 1. "The Surgical Treatment of Wounds and Obstructions of the Intestines." 2. "Asepsis *versus* Antisepsis in Surgery and Midwifery." 3. "The Rôle of Ptomaines in Infectious Diseases." 4. "The Pathological Effects of Chronic Alcoholism." For the best essay on either of these subjects a prize of $200 is offered.

On the occasion of the celebration of his seventieth birthday, at Utrecht, on May 28th, the Medical Society of Munich elected Prof. Donders an honorary member of the Society.

Recent explorations at the Island of Cos have unearthed the site of the renowned temple of Æsculapius, the third in prominence in the mind of the Greek world. The only ones that were held in higher esteem were the temples at Epidauros and Athens. An altar has been found and a marble serpent, the well-known attribute of the god of medicine. The description that Strabo gives of the temple at Cos would indicate the possibility of a rich harvest if systematic excavations are carried on at this site. He says that its shrines were full of votive offerings, including priceless works of art, and its walls abounded in inscriptions recording the cures wrought there, which Hippocrates is said to have studied and from which he learned much of his medical lore. The excavations at the Asclepieion at Athens have yielded valuable results, but much remains to be learned concerning the cult and ritual of Greek medicine, which can only be discovered by the bright spade of the scholarly explorer.

The conditions, symptoms and treatment of the rabid dog are the subject of an interesting circular just published by Dr. S. W. Abbott, of the Massachusetts State Board of Health. This circular makes the surprising statement that the total number of human deaths, registered during the past forty-six years in that State, has been not more than seventy-two by hydrophobia. This leaflet by Dr. Abbott is manifestly designed for popular distribution—the public statutes requiring its publication—and it is probably for that reason that he makes use of the term hydrophobia, instead of rabies, in describing the disease in the dog, wolf, cat, and other lower animals; although at the same time he states plainly that the dread of water is not to be looked for in the mad dog, but rather an uncommon desire for water.

SOCIETY PROCEEDINGS.

THE ONTARIO MEDICAL ASSOCIATION.

The Eighth Annual Meeting, held at Toronto, June 13 and 14, 1888.

(Specially reported for THE MEDICAL NEWS.)

THE meeting was convened at 10 o'clock on Wednesday, June 13th. The chair was taken by the President, Dr. J. W. Rosebrugh, of Hamilton. This meeting was the largest and most interesting yet held by the Association. There were about two hundred members present, exclusive of guests. The papers were of marked interest, the large majority being of a surgical character.

WEDNESDAY, JUNE 13TH.

After the reading of the minutes Dr. Graham presented the report of the Board of the

ONTARIO MEDICAL LIBRARY ASSOCIATION.

A joint stock company had been formed under this title, the shares being placed at $5 each, payable in five annual instalments. Already stock amounting to $4000 had been subscribed, and about one thousand volumes, besides many pamphlets, had been donated. He appealed to the Association individually and collectively for support.

The report was adopted and a donation of $150 voted from the funds of the Association.

DR. F. W. ROSEBRUGH then delivered

THE PRESIDENT'S ADDRESS.

He suggested that this society should affiliate with the British Medical Association, which has now over twelve thousand members and forty-seven branches, and under whose auspices is published the great *British Medical Journal*. He referred to the history of medical science; said that science is still largely empirical, but that the truth is becoming more and more firmly established, that in order to conquer nature you must obey her. The president gave an interesting account of the old days of medicine and medical education in Toronto, mentioning the names of Widmer, Rolph, Bovell, Beaumont and Workman. He urged that better facilities for scientific research should be provided for students in Canada, so that it would not be necessary for them to go abroad. These facilities being provided, the higher the standard was the better, both for the student and his patients.

DR. GRASSETT, of Toronto, read a paper on

URETHRAL DISCHARGES.

After referring to their frequency and the depressing mental effect produced in many patients, he classified them, according to the nature of the discharge:

1st. *Urethritis*, a catarrhal inflammation, of which there are:

a. Simple urethritis, caused by leucorrhœal discharges, excessive coition, mechanical irritants, etc.

b. Specific urethritis, or gonorrhœa. It is not yet proven that this is due to the gonococcus, but the almost constant presence of this microbe in the discharges indicates that it possesses causative properties.

As to treatment, both the abortive and the expectant plans have proved disappointing. The plan found to be most satisfactory might be summarized as follows: Rest in bed, cleanliness of the urethra, secured by frequent passage of urine or by irrigation with hot water. The penis should be allowed to hang in a natural position to permit of the escape of the discharge, and a dressing of salicylic gauze covered with a rubber bag might, with advantage, be applied over the end of the penis. The diet should be unstimulating; alcohol and tobacco forbidden. Alkalies, to keep the urine normal or slightly alkaline, may be given. Injections, other than hot water, are injurious in the early stage. Sulphate and sulphocarbolate of zinc in dilute solution are beneficial later, as also is silver nitrate.

2d. *Gleet*. This may occur in spite of the most careful treatment the circumstances will allow. Probably due to extension of the inflammatory process to the submucous tissue, causing thickening, with some stricture. There may be a granular condition of the mucous membrane. The stricture should be dilated, and any injections used should be only slightly stimulating; astringents to be frequently changed. Caspar, of Berlin, recommends a combination of mechanical and chemical therapeutics. He used nickel-plated bougies with grooves which are filled with medicated paste, which is melted on inserting the bougie into the urethra. After trying iodoform, resorcin, zinc, etc., he has the best results from this combination:

Ol. theobrom.	100 parts.
Argent. nitrat.	1–1½ "
Bals. copaibæ	2 "

This lessens the discharge at once, and the microscope shows a rapid reduction in the proportion of pus cells.

3d. *Prostatorrhœa*. First accurately described by Dr. S. W. Gross, of Philadelphia. It consists of a clear, glairy mucus, most frequently seen after straining at stool. It comes from the acini of the gland, and is increased by masturbation, excessive venery, hard riding, etc. Several cases were cited illustrating the good effects following tonics and the local application of silver nitrate.

4th. *Spermatorrhœa*. Used by quacks and empirics to include even physiological nocturnal emissions. The causes of spermatorrhœa are, among others, hyperæsthesia or irritation of the genitals, inflammation of the prostate or urethra, phimosis, etc.

The treatment should be largely hygienic. Avoid alcohol and tobacco. Empty the bladder before retiring and the first thing in the morning. Give light diet, keep the bowels open and abstain from exciting exercises, as horseback riding. Bromide of potash often acts beneficially; circumcise a long prepuce; treat all causes of rectal irritation, as fissures, piles, etc. Passing large bougies and the local application to the prostatic urethra of silver nitrate (gr. x to xx, ad ℥j) are also useful.

The depressed mental condition of the patient must not be neglected, as much depends upon his intelligent coöperation.

DR. MCFARLAN, of Toronto, thought that boys in school should be carefully cautioned against the evils of self-abuse.

DR. GROVES, of Fergus, drew no distinction between simple and specific urethritis, as they could not be distinguished from each other. Absolute rest in the early stage was essential, and the administration of alkalies, unless the urine were intensely acid, is of doubtful utility.

DR. BURT, of Paris, thought spermatorrhœa should not be grouped with the other diseases discussed, as it had no pathological connection with the urethra. A solution of silver nitrate (one-quarter per cent.) is best in the treatment of urethritis. In stricture, an instrument which can be dilated after it enters the urethra should be used, since one sufficiently large to dilate thoroughly the stricture cannot be passed through the meatus, that being the narrowest part of the canal.

DR. A. W. JOHNSTON, of Danville, Kentucky, then read a paper on

SOFT MYOMA OF THE UTERUS.

He showed that the soft myoma is an homologous growth of the adenoid lining of the uterus, being more nearly akin to the mucous polyp, and not a variety of the hard myoma or fibroid. There is a constant cell development going on in the endometrium, and over-development of this adenoid tissue constitutes the soft myoma.

A case under the care of Lawson Tait was here cited in which a soft myoma occupied the whole uterus. These cases are extremely rare, the reader having met with but two cases. The growth consists of a loose network of fibrils inclosing lymph spaces, with also some of the muscle cells of Billroth, the whole a soft, fluctuating, myxomatous mass. Several engravings of microscopical sections were here shown. There are two main causes of these growths: 1st. The result of the damming back of lymph into the spaces of the adenoid uterine lining; 2d. Unusual development of the uterine follicles. From their peculiar structure it is evident that tapping and electricity must alike be futile, and the only successful treatment is early and complete extirpation.

DR. WHITEMAN then read a paper on the sources of error in the diagnosis and treatment of

EMPYEMA.

One case, which had been treated for three months for "warm fever," recovered in six weeks after opening and drainage. Another, a case of "diaphragmatic empyema," gave much trouble in diagnosis, from its first acting like an attack of biliary colic, from which the patient had suffered two years before. Opened between ninth and tenth ribs, and about one and a half pints of fetid pus discharged. Recovered with free drainage and antiseptic washings. A third was one of double empyema in a child four years old. Open drainage of the right side and three aspirations of the left; recovery.

In treatment, he illustrated the importance of a double drainage with free ingress and egress of air by a case in which a single opening had been made, and the attending physician, fearing evil consequences from admission of air, had wedged one end of a long rubber tube tightly into the opening; the other extremity of the tube being placed under carbolized water in a vessel beside the bed. Being called, as the woman was dying, Dr. Whiteman removed the tube, when about a quart of very fetid pus escaped. In this case, daily washings of the chest cavity were said to have been made, using the tube as a siphon. He maintained that such a course is dangerous, if the lung has in any measure lost its elasticity from long pressure, or is bound down by adhesions, in which event one might as well try to wash out a keg, through such a tube, with a single opening and without admission of air.

DR. T. K. HOLMES, of Chatham, presented a report of twenty-two cases of empyema occurring in his practice, with eight deaths and fourteen recoveries. Four died of phthisis, and one each from traumatism, embolism, asphyxia and pyæmia.

He recommended that the pus be evacuated as early as possible by the introduction of a drainage tube through a single opening made by a large trocar. This maintains free and constant drainage, is simpler than the double opening and admits of irrigation of the cavity, should this be thought necessary.

A study of the twenty-two cases led the author of the paper to the following conclusions:

1. The importance of recognizing cases early.

2. Of the necessity of giving free and constant exit to the pus.

3. That when pus has discharged through the bronchi with no amelioration of symptoms, an external opening may be followed by the best results.

4. That the most unpromising cases are those occurring in the puerperal state and those in phthisical subjects.

5. That resection of the ribs is necessary in but a small class of cases.

6. That the entrance of unpolluted air into the pus cavity does not prevent cases doing well.

7. That washing out the cavity is unnecessary when the pus is sweet.

DR. MACCULLUM, of London, then read notes on

THE PAST YEAR'S WORK IN PHYSIOLOGY AND HISTOLOGY HAVING A PATHOLOGICAL AND CLINICAL BEARING.

After showing proof that collapse of the lung does not often follow opening the pleural cavity, and that the jar given by the heart aids in the elimination of CO_2, Martin's experiments on the coronary arteries were taken up. From the fact that they fill by blood-pressure alone during systole, no degenerative changes can be present in a heart muscle, from disease of the aortic valves, whilst good blood-pressure is being maintained, unless the coronary arteries themselves are diseased. Gaskill's (*Journ. Physiol.*, vol. vii.) experiments proving that inhibition of the heart is essentially a nutritive process led the author to draw the following conclusion: That frequent electrical stimulation of the vagus would be proper treatment of degenerative change in the heart muscle (seeing that stimulation of the vagus has a nutritive effect on the heart).

DR. MULLIN, of Hamilton, opened a

DISCUSSION ON MALARIA AS A CAUSE OF DISEASE.

He pointed out the frequency with which symptoms were ascribed to hidden malarial poison, which were really due to some other cause not patent to the eyes of the careless or unmethodical observer. We do not know what malaria is, and should, therefore, not be in haste to ascribe all variety of symptoms to it. A diagnosis of malaria is often disproved by the intractability of the disease to even enormous doses of quinine. Dr. Holmes, of Chatham, coming from a malarious district had met with malaria under many forms and displaying a great variety of symptoms, singly and grouped. He had again and again proved his diagnosis by the magic influence of a few doses of quinine.

(*To be concluded.*)

CORRESPONDENCE.

A CORRECTION.

To the Editor of THE MEDICAL NEWS,

SIR: In an editorial published in your journal of June 16th, on page 672, you say that but three colleges east of the Ohio River require a three years' course previous to graduation; viz., Harvard, the University of Pennsylvania, and now Jefferson Medical College. This is a mistake. I think there are at least three others, but I am sure that there is one other—the Medical Department of Niagara University, located in the city of Buffalo. The Medical Department was organized in 1883, and by request of the faculty the State Legislature made a three years' course necessary. The college was established in the interest of higher medical education, and it maintains that position now. A three years' course is obligatory, and a four years' course is recommended.

Respectfully yours,

HENRY D. INGRAHAM,
Prof. of Gynecology and Pædiatrics,
Niagara University.

BUFFALO, N. Y., June 20, 1888

THE FIRE AT THE UNIVERSITY OF PENNSYLVANIA.

To the Editor of THE MEDICAL NEWS,

SIR: Will you have the kindness to publish the following resolution, passed at a special meeting of the Medical Faculty, June 1st:

Resolved, That the thanks of the Faculty be extended to the Resident Physicians of the Philadelphia and University Hospitals, to the students of medicine and others who aided so energetically in saving preparations, books and apparatus from the recent fire in Medical Hall.

Respectfully yours,

JAMES TYSON,
Secretary

NEWS ITEMS.

Changes at the Harvard Medical School.—Dr. F. C. Shattuck has been appointed Professor of Clinical Medicine; Dr. J. Orme Green, Clinical Professor of Otology; Dr. Clarence J. Blake, Professor of Otology; Dr. F. I. Knight, Clinical Professor of Laryngology, and Dr. W. H. Baker, Professor of Gynecology.

Dr. E. N. Whittier has resigned the position of Assistant Professor of Clinical Medicine.

The Building Fund of the New York Academy of Medicine, in response to the appeal for subscriptions, has received nearly twelve thousand dollars.

A Successful Operation for Pyloric Stenosis.—Loreta's operation, or the digital divulsion of the pylorus for stenosis, with dilatation of the stomach, was performed, June 11th, by Dr. William T. Bull at St. Luke's Hospital. The patient, a man aged thirty-seven, had suffered for twenty months from daily vomiting, pain, acid eructations and heartburn, and was much reduced in flesh, despite treatment by lavage of the stomach, careful diet and internal remedies. He was made the subject of thorough investigation by testing chemically the fluids of the stomach, by Dr. F. P. Kinnicutt, and the diagnosis of stenosis from cicatricial contraction of an ulcer arrived at. The operation confirmed the diagnosis, the pyloric orifice being found so small as to admit only a bougie of a diameter of three-sixteenths of an inch. Through a wound two inches long near the pylorus the orifice was stretched gradually with bougies and the fingers till it was over two inches in diameter. No accident followed the operation, and the patient may be now (June 19th) considered out of danger. There has been neither pain nor vomiting, though for several days considerable quantities of liquid diet have been taken by the mouth. A full report of the case will be presented at the October meeting of the Practitioners' Society. This is the first successful case of this operation yet reported in this country.—*The Medical Record*, June 23, 1888.

A Generous Endowment.—Joseph Hyrtl, the eminent anatomist, has offered to endow six scholarships, in the Vienna Medical School, for worthy students without means, without distinction of nationality or creed.

Prof. v. Bergmann has been elected an honorary member of the St. Petersburg Chirurgical Society.

Adulteration in Europe.—The sanitary authorities in Roumania, in their report for 1887, mention the discovery and seizure of macaroni colored with naphtalin yellow, picric acid and binitro-cressol, and confectionery colored with auramin, anilin yellow, fuchsin, mononaphtol and dinitro-naphtol. Considerable vinegar essence, intended for the manufacture of vinegar, was seized on importation because it contained picric acid. Analyses were made of distilled spirits, and resulted in finding brandy made from unrectified ethylic alcohol, and colored with picric acid, benzoyl, heleanthin (methylorange) and chrysanilin. Some of it was flavored with ethylic ether, acetic ether, amyl nitrite and prussic acid. The wines sold in inns were nearly all alcoholized and flavored with amylic ether.

In Poland, wheat flour is largely adulterated by the addition, to make weight, of valueless ground vegetable matter, as well as the admixture of from ten to fifty per cent. of barley and rye flour. The result of these vegetable admixtures has been frequent cases of poisoning, including several cases of ergotism.

In Norway, where no anti-adulteration laws exist, the simply honesty of the people has, so far, precluded much adulteration, although milk and butter have not escaped deterioration by adulteration. The medical authorities have, however, found considerable illness caused from the use of arsenical colors in the dyeing and printing of carpets, curtains, furniture coverings and wall paper, especially that imported from England.

In Germany, Dr. Schweissinger found cod-liver oil made of resin and mineral oils, and olive oil entirely made of rape-seed oil.

In Holland, Dr. Van Hamel Roos found 705 milligrammes (11 grains) of common salt in a litre (a quart) of wine imported from the south of France.

In Belgium, an advertisement in the public journals, emanating from Saintes, in France, offers a bottle of wine essence for a little less than a dollar, which essence is guaranteed, by the addition of water, to make 230

litres (61 gallons) of wine. Dr. H. Thorns seized a quantity of milk adulterated with ultramarine.

In Austria, saffron was found to be heavily adulterated with sulphate of baryta, colored with eosine.

In England, a so-called Coleman's-Liebig's extract of meat and malt wine, said to be composed of port wine and Liebig's extract of meat, was found to be nothing but port wine having a considerable addition of salicylic acid.

From Germany comes a circular offering a champagne at 15.60 francs ($3.12) per dozen bottles, including cases, packing and freight to Antwerp or Rotterdam, and adding that any kind of label desired will be furnished.

In Goirle (Brabant), a shoemaker died in consequence of having inoculated a wound by handling leather made from hides imported from Buenos Ayres, which had been treated with poisonous preservatives.—*American Analyst*, June 15, 1888.

Cremation of Garbage. — Milwaukee disposes of its garbage effectually by cremation. The cost of this method is not excessive. To consume forty tons of garbage, about five tons of fuel are required. Even in winter the furnace is in operation only from eight to ten hours daily, and the cost of incinerating the garbage is only about eighty-six cents per ton. Detroit is about to adopt the same system.—*Pharmaceutical Era*, June, 1888.

A New Antiseptic Soap.—At a recent meeting of the Society of Chemical Industry, held at Edinburgh, Mr. John Thomson reported the results of his experiments on the preparation of an antiseptic soap.

The mercuric salts being so powerfully antiseptic, the author experimented with a number of them, but found only one of them to resist decomposition when introduced into soap. This salt was the red iodide (biniodide), which has long been known to be more powerfully antiseptic than even the bichloride. Biniodide of mercury combines with soap of almost any kind without in any degree losing its antiseptic properties. A variety of soaps prepared by the author, and containing mercuric iodide, were tested by several bacteriologists, and were found to be most efficient. The tests were made by introducing silk-threads impregnated with various septic materials (of known origin) into a solution of the soap of a known strength (usually 1 in 120), and leaving them there 10 minutes, which time was sufficient to render them perfectly aseptic.

The biniodide soap has been tried in the treatment of cases of eczema with most marked success, especially where the irritation has been produced by the fermentation of accumulated secretions.

It has also been used in parasitic skin diseases, such as favus and ringworm, with marked success.

The biniodide soap contains from one to three per cent. of biniodide dissolved in iodide of potassium.—*American Druggist*, June, 1888.

NOTES AND QUERIES.

THE DEMAND FOR IMPROVED MEDICAL EDUCATION.

To the Editor of THE MEDICAL NEWS,

SIR: A word of encouragement, though a *mite*, may not fall unheeded. I am proud to see the journal of my choice for twenty-three consecutive years taking the lead in "An Advance in Medical Education." I believe the profession at large will indorse the *three-year course*. The subject was discussed at the recent meeting of the Indiana State Medical Society, and while no definite action was taken, yet all seemed to agree that a higher standard is imperatively demanded.

Respectfully, S. E. HAMPTON, M.D.

MILTON, KY., June 20, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING JUNE 23, 1888.

CRANDALL, R. P., *Assistant Surgeon.*—Detached from the "Minnesota," and ordered to the "Saratoga."

SHIPPEN, EDWARD, *Medical Director.*—Placed on the retired list, June 18, 1888.

SAYRE, J. S., *Assistant Surgeon.*—Ordered to the Navy Yard, New York.

BRADLEY, MICHAEL, *Medical Inspector.*—Ordered to examination for promotion.

KERSHNER, EDWARD, *Surgeon.*—Ordered to the Marine Rendezvous, New York.

WHITE, C. H., *Surgeon.*—Detached from the Museum of Hygiene and await orders.

TRYON, J. RUFUS, *Surgeon.*—Detached from the Marine Rendezvous, New York, and ordered to special duty at New York.

MCCARTY, RUFUS, *Passed Assistant Surgeon* —Detached from the Naval Hospital, Chelsea, Mass., and ordered to the "Yantic."

HENNEBERGER, L. G., *Passed Assistant Surgeon.*—Detached from special duty, New York, and ordered to the "Minnesota."

KITE, J. W., *Assistant Surgeon.*—Detached from the "Yantic," and ordered to the "Richmond."

Surgeons WOOLVERTON, WHITE, WOODS and DUBOIS ordered for examination, preliminary to promotion to the grade of Medical Inspector.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 19 TO JUNE 25, 1888.

MCPARLIN, T. A., *Colonel and Surgeon* (U. S. Army).—Granted leave of absence for one month, with permission to apply for an extension of one month.—*S. O. 52, Department of the Platte*, June 20, 1888.

BROWN, J. M., *Major and Surgeon.*—Will take charge of the office and duties of the Medical Director, Department of the Platte, during the temporary absence of Colonel McParlin.—*S. O. 52, Department of the Platte*, June 20, 1888.

WHITE, ROBERT H., *Major and Surgeon.*—Ordered from Angel Island, California, to Fort Myers, Virginia.—*S. O. 142, A. G. O.*, June 20, 1888.

MUNN, CURTIS E., *Captain and Assistant Surgeon.*—Ordered from Fort Klamath, Oregon, to Angel Island, California.—*S. O. 142, A. G. O.*, June 20, 1888.

TORNEY, GEORGE H., *Captain and Assistant Surgeon.*—Relieved from duty at Fort Monroe, Va., and ordered to Fort Randall, Dakota Territory.—*S. O. 142, A. G. O.*, June 20, 1888.

MCCREERY, GEORGE, *Captain and Assistant Surgeon.*—Relieved from duty at Fort Meade, Dakota Territory, and ordered to Fort Monroe, Va., for duty.—*S. O. 142, A. G. O.*, June 20, 1888.

GORGAS, WILLIAM C., *Captain and Assistant Surgeon.*—Relieved from duty at Fort Randall, Dakota Territory, and ordered to Fort Barrancas, Florida.—*S. O. 142, A. G. O.*, June 20, 1888.

MORRIS, EDWARD R., *First Lieutenant and Assistant Surgeon.*—Leave of absence granted in S. O. 61, May 28, 1888, Department of Arizona, extended one month.—*S. O. 142, A. G. O.*, June 20, 1888.

POINDEXTER, J. D., *First Lieutenant and Assistant Surgeon.* —Granted leave of absence for one month.—*S. O. 55, Department of Dakota*, June 18, 1888.

SWIFT, EUGENE L., *First Lieutenant and Assistant Surgeon.* —Ordered from Fort Spokane, Washington Territory, to Fort Klamath, Oregon, for temporary duty.—*S. O. 142, A. G. O.*, June 20, 1888.

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